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AIR CONDITIONING AND REFRIGERATION News

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INSIDE DOPE

By GEORGE F. TAUBENECK

Story of the Week
The Condemned Man Ate a Hearty Breakfast
How Can We Miss?
New Class of Prospects
The Phantom Frontier
'You Ain't Seen Nothin' Yet'
Hey! Look What's Coming!
World-Wide WPA

Story of the Week

In the midst of a standard sex-and-clown program, a glamorous New York cabaret introduced an old-fashioned interlude: The Strong Man. Highlighted upon an elevated stage, and attired in a leopard skin, this husky fellow opened his act by squeezing a grapefruit dry.

Looking triumphantly at the paying guests, he announced:

"Anyone in this audience who is able to squeeze another drop of juice out of this grapefruit will get a $50 bill."

Several burly fellows accepted the challenge, but their attempts were entirely unsuccessful. Then:

Up stepped a thin, puny, tired-looking, little old man. To the audience's amazement, this unlikely character grasped the remaining grapefruit rind in both hands—and poured out almost a pint of juice.

The night club's Strong Man was flabbergasted.

"Well, I'll be . . .!" he exclaimed. "What in thunder do you do for a living, anyway?"

The diminutive fellow was bashful, but not abashed. "I am a government income tax collector," he explained.

The Condemned Man Ate A Hearty Breakfast

You can bank on it that a recession of some sort is coming. Disregard, if you are skeptical, the technical reasons for the forthcoming "dip" advanced by economists—such as top-heavy inventories, a lagging stock market, excessive prices of many commodities, a tightening of credit, and the absence of extravagant spending in the luxury trades. All these indicators are interesting, of course, but:

Big reason why a recession is coming is that nearly everyone you meet believes it is. Because recurring ups-and-downs recorded on the graphs of American business progress can best be explained in terms of mob psychology, and because most business men expect a downslide nowadays, it follows that we must prepare for an imminent drop in earnings, sales volume, and employment.

When most of us are sold on the idea that trouble lies ahead—and we are, today—we play our cards too close to the vest. We cancel orders, we stop selling, we try to conserve our assets, and we are wary of risk-taking. Inevitably, the economic machine runs down. Turnover is slower, new ventures and new products are postponed, and hiring is held down until we feel that it's time for the pendulum to swing back again.

This manifestation of mass psychology may not make sense, but that's the way we are—especially in violent, turbulent America. Whatever this nation believes, it goes for in a big way. We're either nuts about swing music, or we loathe it. All the girls wear short skirts, and then suddenly they wear long ones. We vote Republican for many years, then we switch over to the Democrats.

Whatever we do, we do it all together, and all at once.

(Continued on Page 12, Column 1)

Frigidaire Is Presenting New Washer Line

DAYTON, May 21—Frigidaire Division of General Motors is introducing a complete new line of electric home laundry equipment to its distributors this week, including an automatic washer, an ironer, and an automatic dryer.

The new washer features "an entirely new washing principle known as 'Live-Water' action."

P. M. Bratten, general sales manager, said that production of the three new products is already well underway, and that distribution to the public will begin about July 1 through a limited number of dealers.

Retail price of the new washer will be competitive with other automatic washers now on the market.

The occasion for the presentation of the new line was a four-day factory sales and service meeting and school. F. M. Mitchell, manager of laundry equipment sales, stated that the Dayton meeting will preview 44 similar meetings for dealers.

Universal Cooler Ups Pendergast and Scott

MARION, Ohio—T. S. Pendergast, who has been director of sales, moves to the new position of assistant to the general manager of the Universal Cooler Division of International Detrola Corp., and Johnston P. Scott will assume the responsibilities of director of sales, it has just been announced by F. S. McNeal, general manager.

Mr. Pendergast, one of the veteran executives in the refrigeration industry, joined the Universal Cooler

(Concluded on Page 4, Column 3)

Artkraft Cuts Price of Bev-Food Model 15%

LIMA, Ohio—A 15% reduction in prices to distributors and dealers on the Bev-Food combination food and beverage cooler has been announced by the Artkraft Mfg. Corp. here. The new reduced retail price is $385, f.o.b. factory, the company said.

The Bev-Food, said to be the only cooler which can operate wet or dry, is divided into two separate compartments, one for beverage cooling and the other for food storage. The beverage compartment can also be used for food storage, according to Artkraft, as the top opening of this compartment prevents the spill-out of cold.

Overall dimensions of the cabinet are 65⅜ in. x 38 in. x 29½ in. The food compartment measures 21¼ in. wide, 28⅞ in. high, and 20¾ in. deep, or slightly more than 7½ cu. ft. The beverage compartment is 35¾ in.

(Concluded on Page 24, Column 4)

'Nuts' to Newburyport, Appliance Firm Says

MANCHESTER, N. H.—"Nuts" is the word for the now-defunct Newburyport Plan, in the opinion of the Granite State Electric Appliance Co. here. That was the caption the firm put on an advertisement it ran recently in a local newspaper.

"No businessman can sell merchandise across the board at 10% less than list prices," the ad said in part. "Why even to keep his doors open, a merchant has certain fixed costs. . . . To these costs he usually adds a small profit. . . . That determines his actual markup over his wholesale price. No one can lower that figure without losing everything he has. . . ."

FTC Official Gives Views On Returns

NEW YORK CITY—Whether acceptance of cancellations and returns would constitute a discrimination among purchasers and thus violate the Robinson-Patman Act as Rep. Wright Patman of Texas, co-author of the law, indicated it would, was recently clarified here in an informal statement made by Joseph E. Sheehy, associate director of the Federal Trade Commission's office of legal investigations.

Mr. Sheehy said that the act would be violated if it can be shown that the seller had not accorded all purchasers the same privilege on proportionally equal terms.

Mr. Sheehy further declared that it is not unlawful to grant discounts, cumulative or otherwise, unless the discounts result in a price differential among purchasers.

The form of the differential, whether by reduced price, increased discount, or otherwise, is unimportant, he stated. It is prohibited if in substance the result is a price discrimination which cannot be justified within the terms of the act, he said.

Problems arising from efforts to show cost justification in price differentials resolve themselves into a matter of accounting and the appropriate allocation of items of cost, manufacture, sale, or delivery in connection with the specific transactions under consideration, he asserted.

Stratton and Smith In New Posts at Crosley

CINCINNATI—Lee Stratton has been appointed domestic sales manager of the Crosley division of Avco Mfg. Corp. and Inwood Smith has been named to succeed him as manager of Crosley's refrigeration section, S. D. Mahan, director of sales and advertising, announced recently.

In his new capacity, Mr. Stratton assumes responsibility for all field selling operations and the merchandising of Crosley products through domestic distribution.

Mr. Stratton has been associated with Crosley since 1944 as sales manager, refrigeration, and has assisted in the development of other lines.

(Concluded on Page 29, Column 1)

Refrigeration Firms Tell Senate How Steel 'Gray Market' Works

Probes Under Way After Testimony by Officials of Amana, Stangard-Dickerson

WASHINGTON, D. C. — Two firms in the refrigeration industry—Amana Society and Stangard-Dickerson Corp.—last week took some of the mystery out of the hitherto mysterious "brokers" who have been demanding exorbitant prices from small manufacturers for scarce steel.

Representatives of the companies named names and addresses, and gave details of transactions in testimony before the Senate Small Business Subcommittee on Steel. The committee is investigating the effect of the steel shortage on small business.

As a result of the testimony, officials of accused concerns have been or were to be ordered to appear before the committee for questioning. The concerns were said to be located in Detroit, Chicago, and St. Louis.

One of those who testified for Amana, R. E. Hatter, counsel for the Society's refrigeration division, disclosed during his testimony that the Federal Trade Commission is already investigating firms he named. Later, he said Amana had filed complaints with the agency against them for failure to fulfill a contract to deliver 3,000 tons of steel at $169 a ton.

In describing the difficulties they have had in trying to obtain steel, Amana officials told the Senate committee the Society—Paid a Detroit concern $2,600 more than a year ago to bind a steel contract that has never been fulfilled.

Bought steel from an unidentified Detroit firm for $235 a ton when the mill price was $80.

Was offered steel by Chicago brokers for two or three times the prevailing mill price if commissions were guaranteed them.

The committee heard from John Quarles, operating manager for Stangard-Dickerson, that he paid the St. Louis Boiler & Equipment Co. $240 a ton for 50 tons of sheet steel. Mr. Quarles said mill prices were then around $50 and $60 a ton.

Details of Amana's dealings with the Detroit firm accused of failing to fulfill the steel contract were supplied by Mr. Hatter. This is the story he told the committee:

Amana, he said, signed a contract in July of last year with the Stakes Steel Supply Co. for 1,000 tons of sheet steel and paid Perry Stakes, head of the concern, $2,000 to bind the agreement. Shortly afterwards, he continued, Amana ordered 300 additional tons and paid Mr. Stakes $600 more. The steel that was to have been delivered during the last four months of the year was never received, it was claimed.

In long-distance telephone conversations, Mr. Stakes told Mr. Hatter, according to the latter, that he had given the money to "colleagues" but they couldn't get the steel. Parts of these conversations were said to be recorded.

Then, in February of this year, Mr. Hatter went to Detroit to confer with lawyers representing the Stakes firm. There, he declared, he learned that Mr. Stakes was trying to get steel through two other Detroit concerns, Lat-Gra-Son Co. and Material Procurement Co.

"I was told that a Larry Grady was the key man in the Lat-Gra-Son outfit," Mr. Hatter asserted, "and that a man named Kuhn was the dominating spirit in the Material Procurement. The Procurement company appeared to be the firm that

(Concluded on Page 32, Column 1)

New Policy Set on 'Freon' Cylinders

WILMINGTON, Del. — Kinetic Chemicals, Inc., producer of "Freon" refrigerants, has announced that on June 1 it will discontinue the present practice of allowing credit only to the national distributor or machine manufacturer who originally made a deposit for the cylinders, and will make the credit or refund to whoever returns the cylinders directly to Kinetic.

The new procedure of making refunds on returned cylinders directly payable to the person or firm returning the cylinders will simplify handling of cylinders and expedites the credits or refunds and so eases the accounting burden upon all who might be in a chain of handlers.

Kinetic officials also pointed out that this step should speed returns of empty cylinders. The speed and volume with which "Freon" reaches the field is dependent upon the rate of return of empty cylinders, it was pointed out.

Sale of McCray Units By Appliance Outlets Is Local Deal Only

KENDALLVILLE, Ind.—Sale of McCray reach-in commercial refrigerators through appliance dealers in the New York metropolitan area does not mean that any such plan of distribution will be developed by McCray Refrigerator Corp. on a national scale, officials of the company emphasized here this week.

They pointed out that the Warren-Connolly Co., Norge distributor in the New York area, has the distributor's franchise for certain models in the McCray line. Warren-Connolly thus has the right to merchandise such equipment through such dealers as it may appoint, McCray officials stated.

Warren-Connolly, which has been showing the McCray models to dealers at its new showrooms at 521 W. 57th St., indicates that only a small percentage of its dealers will handle the line.

An Old Name Invades a New Field

E. R. Godfrey (right), Frigidaire general manager, and P. M. Bratten (left), general sales manager, with the new automatic washer, part of the line of home laundry equipment which Frigidaire is now introducing to its distributing organization.

Speed-Freeze

AN OUTSTANDING FROZEN FOOD CABINET...

PROVEN BY PERFORMANCE!

20 cubic feet, self contained model

The recognized superiority of all IDEAL "Speed-Freeze" products has created nation-wide confidence and distributor preference for this outstanding frozen food cabinet.

For Speed-Freeze cabinets are designed, engineered and built to render many years of extraordinary service, to insure maximum operating efficiency.

Manufactured to the highest standards, the Speed-Freeze line is RIGHT in quality, RIGHT in price . . . and approaches the fastest cooling known in the art of refrigeration. For additional information, write us today.

Proven by Performance

IDEAL Speed-Freeze PRODUCTS

IDEAL COOLER CORP. 2953 EASTON AVE. ST. LOUIS 6, MO.

Philco Sets Up Reserve Against Price Decline

PHILADELPHIA—Net income of Philco Corp. in the first quarter of 1947 totaled $1,609,754, after provision of $1,617,900 for federal and state income taxes and $1,300,000 for inventory reserves, and was equivalent to $1.10 per share of common stock after allowing for preferred dividends, reports John Ballantyne, president.

These earnings compare with net income from operations in the fourth quarter of 1946, when no provision was made for inventory reserves, of $2,072,849 or $1.44 per share of common stock after preferred dividends.

Total sales of Philco Corp. in the first quarter of 1947 amounted to $50,187,000 and exceeded the record volume of $49,132,000 in the fourth quarter of 1946, whereas in the first quarter of last year, due to reconversion sales were $14,218,000.

"While the first quarter's sales and earnings levels have been maintained so far in the second quarter, increasing competition is making itself felt in the electrical appliance industry," Mr. Ballantyne said. "The sellers' market is definitely over, and successful distribution efforts will become increasingly important from this point on.

"Prices of many materials are continuing to edge upward, but in view of the extent of the price rise to date, it is believed advisable to set up substantial reserves against possible price declines later on. Accordingly, an inventory reserve of $1,300,000 has been established out of the first quarter's earnings."

Locker, Ice Cream Plant Jobs Given Approval

WASHINGTON, D. C.—The Facilities Review committee of the Office of the Housing Expediter recently approved the following applications for non-housing construction:

A frozen food locker plant to be constructed by the Farmers Cooperative Association at Brewster, Kan., at a cost of $13,500.

Completion of an ice cream plant addition to cost $20,000 at Belleville, Mich., by Russell Van Bubler.

Addition, repairs, and replacement for food preservation and storage space at Middletown, N. Y., by the Great Atlantic & Pacific Tea Co. Estimated cost is $4,402.

SURPLUS SALES:

Refrigeration Equipment Bids Will Close May 28 In Chicago

CHICAGO—A wide variety of government surplus refrigeration equipment is being offered for sale on a sealed bid basis by the plumbing division of the local War Assets Administration office. The bids must be in by May 28.

Listed equipment includes reach-in and ice cooled refrigerators, used General Electric air surface coolers, filtering units, compressors, water coolers, and quick freezing units.

WAA Offers Dehydrants Priced At 8 Cents lb. In Detroit

DETROIT—In a sale ending June 3, the local office of the War Assets Administration is offering to all buyers 185,084½ lbs. of silica gel and 132,413 lbs. of dessicite dehydrating and protective agents at eight cents per pound.

The dehydrants are being sold in lots from 40 lbs. to 55,725 lbs.

Inventories of these materials are located in Dearborn, Highland Park, and Muskegon, Mich.

At Grand Opening

H. A. Malcom (left), Airtemp vice president and sales manager, is shown congratulating the firm's newest four-star dealer, Carl W. Millsom, vice president of Temperature Equipment Corp.

* * *

Airtemp Dealer's Cooling Unit Serves Twin Purposes

CLEVELAND — Several hundred architects, engineers, and builders attended the recent grand opening of the new offices of the Temperature Equipment Corp. of Cleveland, newest Chrysler Airtemp "four-star" dealer.

Feature of the new salesroom is that air conditioning equipment on display will serve a double function because it is actually used to cool the room, thus giving a practical demonstration of its cooling ability, states Carl W. Millsom, vice president.

Two large show rooms, in the front of the building, which is located at 4501-05 Euclid Ave., one of Cleveland's main thoroughfares, are devoted to air conditioning and commercial refrigeration, and general heating displays respectively.

In addition there is office space, an engineering office, and a complete parts room. A large basement, with 12-ft. ceiling, provides ample storage.

E. K. Heglin, former district engineer for Chrysler Airtemp in Kansas City, has been named manager of application engineering and E. S. Hatfield, formerly with Jack & Heintz, has joined the firm as service manager.

Elgin Heads Newly Chartered General Air Conditioning Corp.

LITTLE ROCK, Ark.—The newly incorporated General Air Conditioning Corp. here is headed by R. D. Elgin, president, and James A. Wellons, vice president.

The new corporation will operate throughout Arkansas, through a state-wide dealer network, for both retail and wholesale sales of equipment for refrigeration, air conditioning, and heating.

Fedders-Quigan Asks Listing Of $1 Par Common Shares

BUFFALO — The Fedders-Quigan Corp. has applied to the New York Stock Exchange for the right to list the corporation's 1,200,000 outstanding shares of $1 par common stock, President Salvatore Giordano announced here.

AMERICAN THERMAL INDUSTRIES

AIR CONDITIONING PACKAGE UNITS

Ameri-therm

READY FOR Immediate Delivery!

Ameri-therm GIVES YOU ALL THESE EXCLUSIVE FEATURES

★ *Balanced System In One Package!*
Every component element in this outstanding Ameri-therm Package Unit is time tested and perfectly balanced. Your customer is always assured the most effective cooling at a negligible cost.

★ *Streamlined Styling!*
Nearly every type store interior will be enhanced by a handsome, modern, streamlined Ameri-therm Air-conditioning Unit.

★ *Automatic Controls!*
Non-technical personnel in offices, stores, restaurants or places of entertainment can easily regulate temperature conditions with the Ameri-therm Unit. **Only two** easy-to-operate dials completely and effectively control Ameri-therm Air-conditioning Package Units. **Controlled Air-conditioning** means constant controlled temperature.

★ *Multi-Unit Installations!*
Ameri-therm Units offer extreme flexibility of installation. Nearly all field requirements—single or multiple installations—can be handled easily . . . Ameri-therm Units are flexible because of the advanced design incorporated in service connections. Remote installations, too, are possible with little effort and expense.

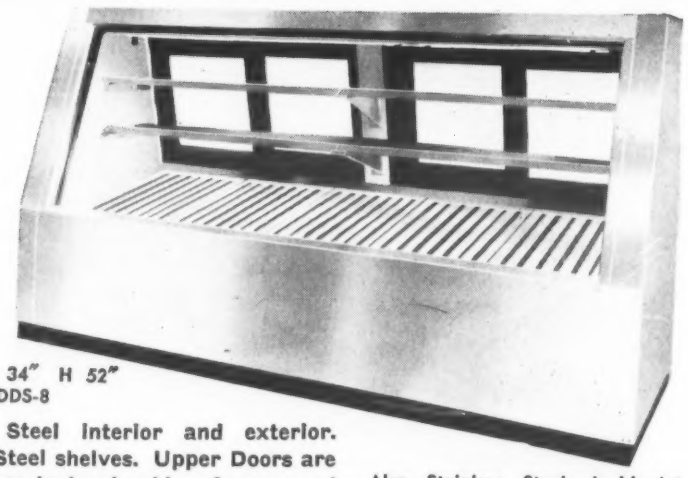
AVAILABLE FOR IMMEDIATE SHIPMENT!
3 ton, 5 ton and 7½ ton Ameri-therm Units are in stock at all times.

Ameri-therm Air-conditioners are built to tested specifications. Available in 3 to 15 horsepower units.
(Can be furnished with heating coils)

ENGINEERED AND MANUFACTURED by

AMERICAN THERMAL INDUSTRIES, INC.
440 Illinois Avenue, Detroit 1, Michigan

DELICATESSEN DOUBLE DUTY DISPLAY CASE



L 8' W 34" H 52"
DDDS-8

Stainless Steel interior and exterior. Stainless Steel shelves. Upper Doors are sliding glass in hard rubber frames and tracks. Bottom doors hinged. Coils included. Wired for fluorescent lighting.

Also Stainless Steel double-duty Meat and all-vision cases. Special sizes made to your specification. Porcelain cases in limited sizes.

- DELIVERY • ONE WEEK -

FRIGITEMP CORP. 931 Bergen St., Brooklyn, N.Y. MAin 2-9093

BEAUTY PLUS UTILITY

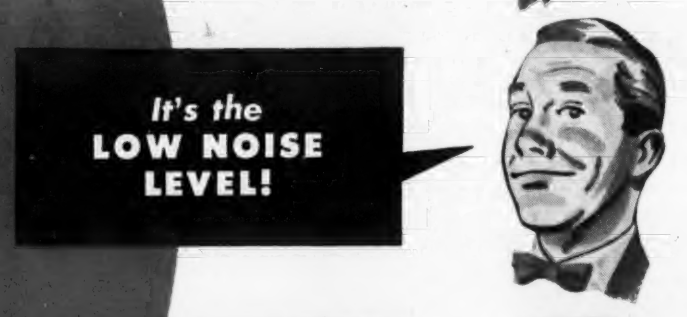
Larkin refrigeration products are modern proof that engineering beauty can add to functional efficiency. Originator of the Cross Fin Coil, Larkin also produces highest quality in Humi-Temp Forced Convection Units—Bare Tube and Zinc Fused Steel Plate Coils—Evaporative Condensers—Air Conditioning Units—Instantaneous Water Coolers—and other superlative equipment for commercial and industrial refrigeration.

THE WATCH DOG OF THE NATION'S FOOD SUPPLY

LARKIN COILS 519 MEMORIAL DRIVE • S•E• ATLANTA • GEORGIA

why RAYTHEON REFRIGERATOR FAN MOTORS

Stay Young So Many Years Longer!



5 BIG WAYS BETTER!

On every score that counts in terms of long, trouble-free life and smooth, quiet efficiency under every conceivable condition—Raytheon Refrigerator Fan Motors have exactly "what it takes".

These precision-engineered refrigerator fans for compressor units are now available in two different types. One is equipped with a 6-blade fan, 7¾ inches in diameter—and the other is equipped with a 3-blade fan, 8¾ inches in diameter. Check with us now for complete information.

RUSSELL
ELECTRIC COMPANY

340 West Huron Street
Chicago, Ill.

ICE CREAM CABINETS

IMMEDIATE DELIVERY!

2-4-6-8-12 hole
Complete with or without units

- ALL STEEL CONSTRUCTION
- STAINLESS STEEL TOP with ROUNDED EDGES
- HARD RUBBER FLIP-FLOP COVERS
- WHITE ENAMEL FINISH

DISTRIBUTORSHIPS AVAILABLE • EXPORT INQUIRIES INVITED
ICE CREAM MANUFACTURERS SUPPLIED

Manufactured by
Frostedaire CORP.
Division of WEST SIDE IRON WORKS
801 GREENWICH ST., NEW YORK 14, N.Y. • CHelsea 3-4900

Universal Cooler--

(Concluded from Page 1, Column 2)

organization in 1931 and has been director of sales for several years.

Mr. Scott has been connected with Universal Cooler as a sales representative for the past 4½ years with the exception of the past six months when he was working directly from the Detroit offices of International Detrola, doing special sales work in the radio division. Prior to associated with Universal Cooler he had been connected with Victor Adding Machine Co., Bendix Home Appliances, Inc., and Nash-Kelvinator Corp.

Auction of Panelectric Assets Set for June 4

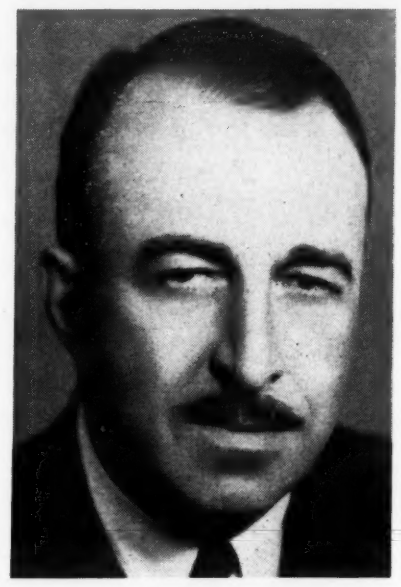
SOUTH NORWALK, Conn.—Assets of Panelectric Corp., adjudged bankrupt by the U. S. District Court at Hartford in February, will be sold "free and clear of encumbrances" at a public auction here on June 4. All real estate and equipment will be sold that day.

The sale will start at 11 a.m. (daylight saving time) from the company's main office on Elizabeth St., according to Saul Berman, U. S. referee in bankruptcy. It will be subject to the approval of the court.

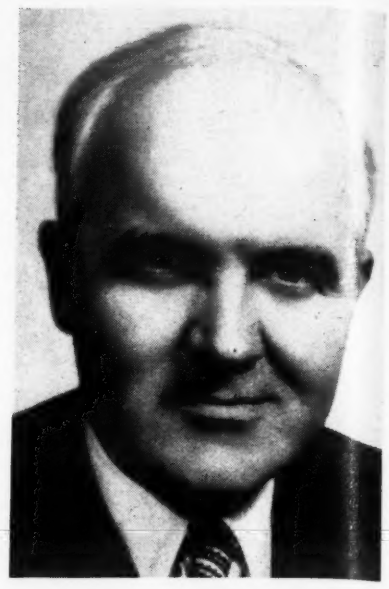
Details of the auction may be obtained from the trustee, A. D. Slavitt, 74 Washington St., South Norwalk, or from James J. Leon, auctioneer, 271 Noble Ave., Bridgeport, Conn.

Panelectric had been manufacturing two models of ice-cube makers.

Take New Posts with Condensing Unit Producer



T. S. PENDERGAST



J. P. SCOTT

Dept. Store Sales Continue To Rise

NEW YORK CITY—A rising trend of sales in department stores throughout the country was noted here.

For the week ending May 17, figures from 14 major local department stores showed a 7% increase in sales over the same week in 1946. In Detroit, two large department stores reported 27% and 11% increase for the same period.

Three Los Angeles stores reported sales rises of 43%, 27.4%, and 18.8%. Smaller gains were noted in Chicago.

2,400 Carrier Employes Get Wage Increase of 8 Cents

SYRACUSE, N. Y.—Approximately 2,400 employes of Carrier Corp. have received a wage increase of eight cents per hour on their base rates effective May 2, the company announced last week.

The raise is in accordance with Carrier's announced policy of paying wages that are at least equal to those prevalent locally for similar work under comparable conditions, according to company officials.

Electromaster Reports Profit

DETROIT—Electromaster, Inc. reports a net profit for 1946 of $96,970 or 16 cents per share, compared to $89,368 or 15 cents per share in 1945.

Net sales were $3,415,538 for last year and $3,688,152 for 1945.

Pressed Steel Nets $449,403

CHICAGO—A net profit of $449,403, or 38 cents per common share, for the first quarter was reported by Pressed Steel Car Co. here. This compares with a loss of $165,798 for the same period last year, the company said.

It paid Jordan Marsh six ways to insulate with SANTOCEL

Pre-loaded (1000 lbs. net) containers, insulated with Santocel. Two fit neatly into 1 ton International truck Body by Metropolitan Body Co., Bridgeport, Conn.

When Jordan Marsh, New England's largest department store, recently set up a home delivery system for frozen foods, Santocel, "world's most efficient insulation material," played a vital role.

By building pre-load containers, insulated with Santocel, for its delivery trucks, Jordan Marsh saved precious weight and space. Walls of containers were three inches thick instead of six inches required with ordinary insulation. Santocel and the "pre-loaders" paid Jordan's six ways:

1. Instead of the heavy truck originally planned (which weighed 8800 lbs. without food, over five tons with!) Jordan Marsh got a truck with a gross weight of 7600 lbs. including a ton of food.
2. Made possible obvious savings in gasoline, tires, upkeep. With no chassis changes, the truck manufacturer's guarantee remained valid.
3. Didn't jeopardize delivery of food, if trucks should be tied up for repairs or by accident.
4. No time was lost in loading; extra cabinets made possible pre-loading.
5. "In-cab" delivery cut in half the time driver spends going to rear of truck for each call . . . makes it possible to handle more customers per day, per route.
6. Extra room in truck makes possible handling dry goods on route.

So satisfied with the system Santocel made possible is Frederick Price, refrigeration engineer in charge of Jordan Marsh's new service, that he has ordered ten more trucks for a fleet of 12. And Allied Stores, of which Jordan Marsh is a member, is planning similar operations from coast to coast.

If you want to know more about how Santocel can save space and money for you, write: MONSANTO CHEMICAL COMPANY, Merrimac Division, Boston 49, Mass.

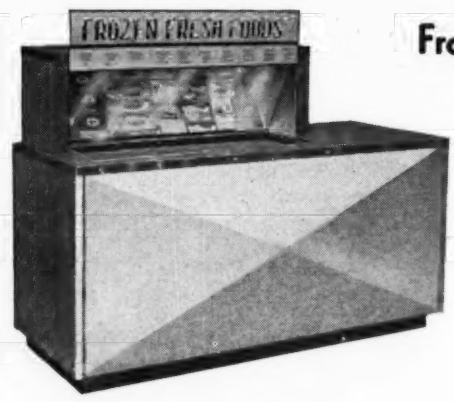
Santocel; Reg. U. S. Pat. Off.

MONSANTO CHEMICALS AND PLASTICS

SANTOCEL SAVES SPACE

SERVING INDUSTRY . . . WHICH SERVES MANKIND

ROGERS QUALITY LINE of Refrigeration



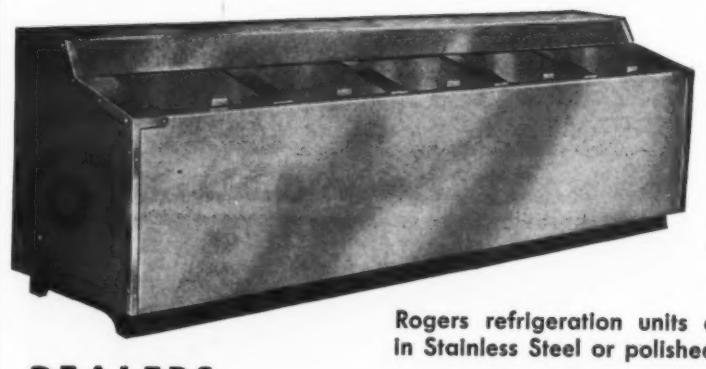
Frozen Foods Salesman

Shows them and sells them while maintaining proper temperature. Capacity 11.8 cu. ft. 5-in. Fiberglas insulation. Has heavy duty ¼ H.P. compressor. Main box is 6 ft. by 29½ in., 39 in. high.

Walk-in Cooler

All metal clad, inside and out (photo shows wooden door but new model has door of metal). Shiny and attractive in appearance and easy to keep that way. Built for permanence. Precision construction permits rapid and easy assembling. Two sizes: 6 by 8 feet and 6 by 6 feet, both 7½ high.

Dry Beverage Cooler



39 in. high, 30 in. wide, 6, 8, or 10 ft. long. Lids slide away or lift out. Removable dividers. 8-in. utility shelf.

Rogers refrigeration units are finished in Stainless Steel or polished Aluminum.

DEALERS WANTED

Write, wire or phone today for information on franchise.

Immediate Delivery!

W. ALLEN ROGERS Industries

BOX 272-AC[illegible] DEMOPOLIS, ALA.

Your No. 1 Market for HOME FREEZERS

(THE KEY SPORTSMEN WHO READ FIELD & STREAM!)

● When a trout fisherman gets his limit, and wants to keep some fish to admire and eat another day—he can do it in a home freezer of his own. The way to sell him *your* home freezer is to advertise it in Field & Stream—read by men who can afford to buy the equipment needed not only to catch their fish, but keep them, too!

Here's how you can get the story of your home freezers to your logical No. 1 market.

The audience covered by Field & Stream are key sportsmen who need home freezers and have the money and the desire to buy.

The "buy-ability" of these key sportsmen has made Field & Stream "America's Number One Sportsman's Magazine." It can make them your No. 1 market for home freezers, too! Ask any of the many advertisers who make Field & Stream a "must" on their advertising lists. They'll tell you it *produces sales!*

Sell home freezers to these selected prospects quickly, inexpensively and profitably through Field & Stream—*the magazine in which more advertisers used more space in 1946 than in any other sportsman's magazine!*

* * *

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To Sell Home Freezers to Your No. 1 Market Use...

Field & Stream

AMERICA'S NUMBER ONE SPORTSMAN'S MAGAZINE

Stangard-Dickerson Reports Progress In 4 Month Receivership

NEWARK, N. J.—Stangard-Dickerson Corp., which has been operating under a receivership since Jan. 20, is continuing to ship refrigeration cabinets and plate-type evaporators, but production is limited by material difficulties, it was stated last week by Augustus C. Studer, Jr., receiver.

In a special statement prepared for publication Receiver Studer declared:

"In spite of the tightest steel market known in the industry, which caused Stangard-Dickerson Corp. to seek relief under Chapter 11 of the Bankruptcy Law for an arrangement affecting merchandise creditors, the Receiver who was appointed by order of the United States District Court on Jan. 20, 1947, reports progress.

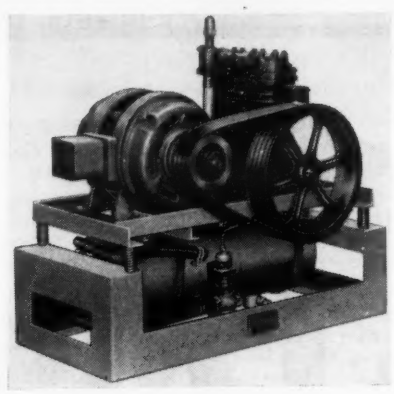
"The appointment authorized the Receiver to conduct the business for an indefinite period. The Stangard-Dickerson Corp. under the administration of the Receiver is continuing to ship refrigeration cabinets and cold plates. Because of the existing steel market, production, at present, cannot be maintained at plant capacity."

Food Freezer Distributing Appoints Ex-MSC Coach

LANSING, Mich. — Charles W. Bachman, former head football coach at Michigan State College, has been appointed general sales manager of Food Freezer Distributing Co. here, distributor of Bishop freezers.

C. W. Bachman

Mr. Bachman's resignation from MSC ended a 26-year coaching career during which his teams won 134 games, lost 82, and tied 22. He became head coach at State in 1933, after playing at Notre Dame and coaching at Northwestern, Depauw, Florida, and Kansas State.



* * *

New Typhoon Unit Introduced

BROOKLYN—The addition of a "floating power" condensing unit to its line of Typhoon air conditioning and low side assemblies is announced by Ice Air Conditioning Co. here.

Delivered complete with compressor, flywheel, V-belt, drive, line valves, all copper condenser, receiver, ball bearing motor, dual pressure control, water regulator, valve, and belt guard, this high side unit is available in sizes from 3 to 15 tons.

Dealer Uses 'Customer Pick-Up Service'

ALEXANDRIA, La. — Consumers who want to inspect the line at the newly opened Refrigeration Appliance Center here, don't have to worry about transportation. All they need do is 'phone the Center and a receptionist will arrange a round trip free-of-charge in the firm's "Courtesy Car."

A general line which features reach-in refrigerators, beverage coolers, freezers, fountains, as well as household units is promoted by the following:

"You don't have to ride a bus or taxi to get to our Appliance Center. All you have to do is dial 4524 and make an appointment . . . for a time that will be most convenient for you. . . . Our Courtesy Car will call for you taking you to our new Appliance Center, and after inspecting our merchandise, will return you to your home. Night appointments can be made."

Co-op Names Washburn Electrical Dept. Manager

ALLIANCE, Ohio—United Cooperatives, Inc., with headquarters here, has announced appointment of D. E. Washburn as manager of the organization's farm electrical department.

Mr. Washburn is a graduate agricultural engineer from the Ohio State university and has had a variety of experience in the electrical field as applied to agriculture. He has been associated with the Ohio Edison Co. and served also with the Tennessee Valley Authority, where he assisted on educational programs for farm electrical equipment.

At a recent meeting of United's farm electrical committee in Cleveland, a proposal was advanced to have the co-op add a line of oil burners to the list of equipment which it distributes. Action on this was deferred pending further consideration.

Distribution of farm freezers, walk-in coolers, and milk coolers was outlined at the meeting by United's J. G. Brandon. The co-op's quality control program, as it applies to farm electrical equipment, was discussed by F. B. Taber and United's advertising program was presented by H. S. Scott.

A comprehensive report on the washing machine situation in the United States was given by Roy Hicks of Farm Bureau Services, Inc., Lansing, Mich.

Kansas Druggist Keeps Reach-In Refrigerator In Show Window

KANSAS CITY, Mo.—One reason for the heavy trade in biologicals which has always been enjoyed by the Hunter Bros. Pharmacy at 219 Eleventh Ave. here, is the fact that a 22-cu. ft., 4-compartment biological refrigerator is constantly on display in the left hand window of the store.

Operating an exclusively prescription store since 1928, Nicholas and William Hunter, brother-pharmacists, have made a specialty of biologicals such as serums, vaccines, anti-toxins, penicillin, streptomycin, etc.

To let everyone know that the store carries an unusually large stock of biologicals, when the Frigidaire 4-compartment refrigerator was installed, it was sunk flush in the wall immediately behind the angled glass windowpane.

"Whenever we wait on a physician or a prescription-bearing customer from the refrigerator, scores of people passing by outside see almost the entire transaction," Nicholas Hunter pointed out. "We feel that the chances are, whenever the need for refrigerated biologicals arises, most customers will remember us as the prescription pharmacy with the refrigerator in the window."

Kalamazoo Stove Nets $41,266

KALAMAZOO, Mich.—Kalamazoo Stove & Furnace Co. here has reported a net profit of $41,266, or 14 cents per share for the first quarter of 1947. This is in contrast to a $28,373 loss for the first quarter of 1946.

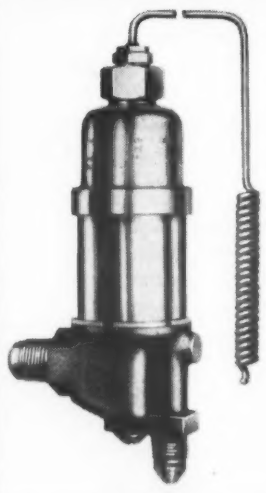
FOR BETTER REFRIGERATION

Good Compressor
Good Coils
Good Refrigerant

"DETROIT" VALVES

Particular refrigeration men everywhere prefer "Detroit," because they know that "Detroit" Expansion Valves and Solenoid Valves make refrigeration systems operate to best advantage. "Detroit" Gas Charging results in better and smoother operation with less load on the motor.

There is a "Detroit" valve for every application.



NO. 673—"THE STANDARD OF THE REFRIGERATION INDUSTRY"

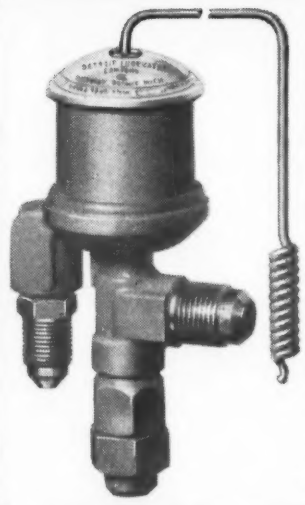
"Detroit" No. 673 has a long record of dependable performance in a wide variety of installations, and has been, for many years, "the standard of the refrigeration industry." Designed for average size commercial and air conditioning installations. Sensitive and accurate in operation—gas charged for instant response and reduction of motor load during pull-down cycle. Duraflex bellows and Delubaloy needles and seats resist corrosion and assure long life.

UNIT NUMBERS OF No. 673 VALVE

Use "Detroit" Unit Numbers when ordering these stock items from your "Detroit" Wholesaler.

Unit No.	Refrigerant	Max. Pressure	Connections
6731968	Freon-12	15	Inlet: 3/8" SAE for 3/8" x 1/4" Reducing Nut. Outlet: 1/2" SAE
6731428	Freon-12	55	
6731563	Methyl	10	
6731411	Methyl	40	

Rated at 1-ton Freon-12 or 2-ton Methyl.



NO. 573—THE SAME SUPERIOR PERFORMANCE AS THE NO. 673 FOR SMALLER INSTALLATIONS

This valve, in 1/2 ton (Freon-12) capacity, has the quality and operating characteristics of No. 673. Designed for small commercial installations, its double diaphragm construction, with a gas charged power element, permits close superheat control at low suction pressures. Motor overload protection in its simplest, most effective form is provided by means of a single power element.

UNIT NUMBERS OF No. 573 VALVE

Use "Detroit" Unit Numbers when ordering these stock items from your "Detroit" Wholesaler.

Unit No.	Refrigerant	Max. Pressure	Connections
57300	Freon-12	45	Inlet: 3/8" SAE for 3/8" x 1/4" Reducing Nut. Outlet: 1/2" SAE for 1/2" x 3/8" Reducing Nut.
57309	Freon-12	10	
57311	Methyl	35	
57315	Methyl	5	

Rated at 1/2-ton Freon-12 or .9-ton Methyl.

DETROIT LUBRICATOR COMPANY

"DETROIT"

General Offices: 5900 TRUMBULL AVENUE, DETROIT 8, MICHIGAN

Division of American Radiator & Standard Sanitary Corporation

Canadian Representatives — RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • "Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators

odorless

Jarrow...

Refrigerator Door Gaskets Are Again Made From Crude Rubber

Always Demand These Quality Gaskets

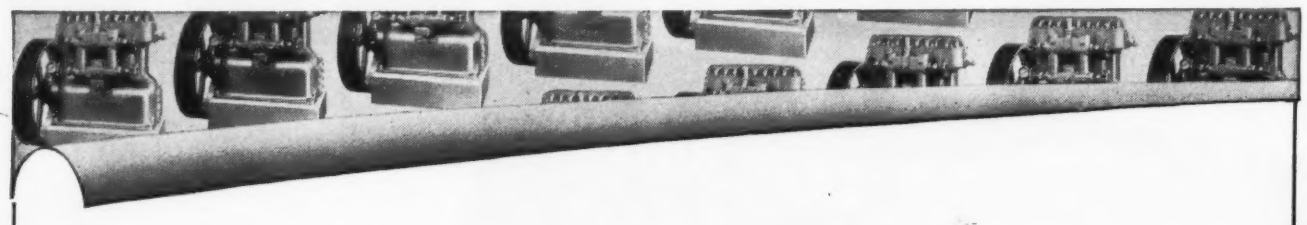
JARROW PRODUCTS

420 N. LA SALLE ST., CHICAGO 10, ILLINOIS

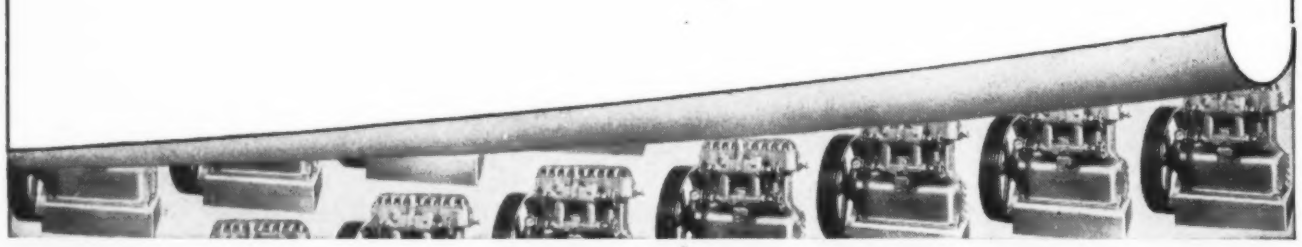
. . . THE BIG FLOOD OF CASH BUYERS FOR COMMERCIAL REFRIGERATION EQUIPMENT HAS PASSED ITS PEAK STAGE. THE MAIN SOURCE OF FUTURE BUSINESS WILL BE THE TIME-PAYMENT MARKET. TO GET THE FULL RETURN FROM THIS MARKET, FACTORIES AND DISTRIBUTORS NEED THOROUGHLY EFFICIENT FINANCING SERVICE, BOTH WHOLESALE AND RETAIL. IF YOU HAVE NOT YET INVESTIGATED THE LIBERAL TERMS AND PROFIT-PROTECTIVE FEATURES OF COMMERCIAL CREDIT PLANS, CALL OR WRITE YOUR NEAREST COMMERCIAL CREDIT OFFICE FOR FACTS AND FIGURES.

COMMERCIAL CREDIT CORPORATION

MORE THAN 300 OFFICES IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA



The refrigeration compressor is as important as the feedlot in the production of nicely marbled prime rib roasts for your Sunday dinner. After slaughtering, carcasses are rushed to chilling coolers for quick removal of body heat. Then the sides go to storage coolers where controlled temperatures and humidity prevent shrinkage, improve quality. After ageing, prime beef is shipped to distribution points in refrigerated trucks and railroad cars. Your neighborhood butcher stores his sides and quarters in a refrigerated cooler. You buy your prime rib roast from a refrigerated display case, and refrigerate it at home. One feedlot but many compressors are necessary to produce and deliver that juicy roast. Baker compressors guard the many production processes and delivery of prime beef from feedlot to table all over the world. Baker Ice Machine Co., Inc., factories at South Windham, Me., and Omaha, Neb.



Changes Suggested In Fire Protection Code For Conditioning Jobs

BOSTON—F. H. Faust of the General Electric Co. Air Conditioning Department and chairman of the Committee on Air Conditioning of the National Fire Protection Association will submit the report of his committee at the NFPA's 51st annual meeting at Chicago's Palmer House hotel, May 26-29.

The committee is considering two important changes in the NFPA Standards for the Installation of Air Conditioning, Warm Air Heating, Air Cooling, and Ventilating Systems.

One change prohibits the use of corridors in public buildings as return air chambers and the other permits design of air conditioning or ventilating systems so that they can be used for the removal of smoke.

The new paragraph prohibiting the use of corridors as return air chambers reads:

"Corridors and stairways in hotels, hospitals, institutions, and similar occupancies and public corridors and stairways in multi-family houses shall not be used as a part of systems for supply of air to rooms or removal of air from rooms."

Dealer Shops, Theater Cooling Jobs Approved

WASHINGTON, D. C.—Because they will have a negligible impact on the Veteran's Housing Program, the Office of the Housing Expediter recently approved the following applications for construction projects:

An addition to a tin, air conditioning, and furnace shop at Mandan, N. D., to cost $1,500. Applicant was Frank T. Friese.

A household appliance warehouse and salesroom building by the Kahl Appliance Co. at Freeport, Ill., at an estimated cost of $3,500.

An air conditioning system for a motion picture theater at Upper Darby, Pa., to cost approximately $80,403. Application was made by Paramount Pictures Theaters Corp.

New Distributors To Handle Sterling Lines

OMAHA, Neb. — Appointment of three new distributors to handle the truck refrigeration and bus air conditioning equipment manufactured by the Sterling Mfg. Co. here, has been announced by J. P. Goggins, engineering manager of Sterling's refrigeration division.

The new distributors are Refrigerating & Power Specialties Co. of San Francisco, Refrigerative Supply of Seattle, and Refrigeration Service Co. of Denver.

Sterling has already announced two truck refrigeration unit models and promises others to follow.

All-Industry Show Plans Special Hours For Various Groups

PITTSBURGH—Special times will be set aside for wholesalers, contractors, and service engineers in the refrigeration industry during the Fifth All-Industry Refrigeration and Air Conditioning Exposition in Cleveland, Jan. 26 to 29, 1948, it was announced recently by the Refrigeration Equipment Manufacturers Association.

While the show will be opened officially at 2 p.m. Monday, Jan. 26, 1948, the hours from 10 a.m. to 2 p.m. on that day will be reserved for a preview for wholesalers. The Refrigeration Equipment Wholesalers Association, which will meet during exposition week, has been advised of this arrangement by the REMA show committee.

The second day of the exposition—Tuesday, Jan. 27, 1948—will be devoted to exclusive showings for contractors and service engineers, and word of this scheduling has gone forward to the Refrigeration Service Engineers Society and National Association of Refrigeration Contractors, both of which are expected to participate actively in the four-day show program.

The official show hours of 2 to 10 p. m. on Monday; 12 noon to 6 p.m. on Wednesday; and 10 a.m. to 4 p.m. on Thursday of the week of Jan. 26, will be open to all groups in the industry. The Fifth Exposition, REMA reports, will be a closed trade event and will not be open to the public at any time.

As wholesalers, contractors, and service engineers throughout the country are being advised of the special scheduling, show headquarters in Pittsburgh has announced that the number of show exhibitors is continuing to mount. As of May 10, a total of 89 companies have taken space in the exposition.

Ohio State Will Offer Locker Course In August

COLUMBUS, Ohio—Announcement has been made by Prof. H. D. Brown of Ohio State university of the third locker short course which will be presented by Ohio State university in Columbus, during the month of August.

The new course will follow the same outline as the two former ones, and through the experience gained at previous sessions, it is believed that all of the important subjects of earlier courses can be included in the newest school.

Industry members of the Frozen Food Locker Institute will address the classes as well as those in the school to be held at Kansas State College in Manhattan, beginning June 9.

DEALERS and DISTRIBUTORS
Make Fast, Trouble-Free Sales
with the BAYERS perfected
AUTOMATIC
MOTORLESS
Carbonator
SELL "BAYERS" AND MAKE FRIENDS OF YOUR CUSTOMERS . . . PERFECTED IN 12 YEARS OF RESEARCH . . . THOUSANDS IN PRAISE-WORTHY USE . . . NOTHING ELSE LIKE IT ON THE MARKET.
Sells On Sight
only $159.50 fob Denver
10¾"x10¾"x6"
Wt. 15 lbs.
So Simple that it Really Works
It's Fully Guaranteed by BAYERS
ACT NOW! DEALERS EVERYWHERE ARE MAKING QUICK PROFITS!
WRITE, WIRE OR TELEPHONE FOR COMPLETE DETAILS ABOUT "THE BAYERS" . . THE SMALLEST . . FOOLPROOF CARBONATOR BUILT.
ALL OVER THE WORLD
BAYERS
PRODUCTS
MADE IN U.S.A. – TRADE MARK REG.
BAYERS MANUFACTURING CO.
440 E. 13th AVE.
DENVER, COLO. • ALpine 5555

OFF THE CHEST

FREEZER MFRS. SHOULD EDUCATE THE PUBLIC

Walter Swanson Hatchery & Feed Co.
Butterfield Road
Elmhurst, Ill.

Editor:

We are a hatchery that handles freezers. I meant to answer your editorial stating that "nearly everyone and his brother is handling home freezers, from hatcheries to garages, and from Kaiser-Frazer showrooms to basement radio repair shops" but chick season was in full swing and I didn't seem to find the time. However, the chick demand ended rather abruptly this year, and after reading Mr. E. E. Anderson's letter today in your May 12 issue, it brought your editorial to my mind again.

Most of the hatcheries today, especially the community hatcheries, are farm supply stores. In our case we not only hatch chicks, but sell feed, fertilizers, poultry equipment, garden seeds and tools, hardware, garden tractors, outboard motors, bicycles and freezers.

Most of the community hatcheries handle almost anything that can be sold to farmers. They are in a substantial, well regarded business and are a credit to their community. Many of them have been in business for a number of years and the farmers trust them. The farmer is cautious; he prefers to trade with someone he knows, and someone he believes will stay in business. In one suburb of Chicago there were three appliance dealers before the war, and now there are 20. How many do you think will be in business a year or two from now?

I believe the hatcheries are doing the appliance dealer more good than harm in selling freezers. The farmer comes into the hatchery to buy feed and supplies almost every week. How often does he go into an appliance store? Probably once a year. Every time he trades at the hatchery he sees a freezer; he becomes interested, and finally a desire to own one is created. But the farmer is shrewd. He then visits the appliance stores and if they are a better salesman than the hatcheryman, and in many cases they are, he buys his freezer from the appliance store.

Some of the appliance dealers have been staying away from freezers, especially the larger ones, because they are too bulky and hard to handle and take up too much room, and also because the general public is not yet completely sold on them.

Unless the freezer manufacturers spend more money advertising and educating the public on frozen food, the freezer will never come into its own rightful place in the homes of the American people. As an example of what advertising can do, the Poultry and Egg National Board has raised the per capita consumption of eggs from 200 to over 400 eggs per person in just a few years.

I hope that the freezer manufacturers will see the light and do more advertising to the general public so as to create a desire for them to own a freezer.

WALTER SWANSON

P.S.—I am enclosing check for $3 for autographed copy of "One Foot in the Door."

LOCATION OF BEN-HUR PRODUCTS IS CONFUSED

Ben-Hur Mfg. Co.
634 East Keefe Ave.
Milwaukee, Wis.
May 16, 1947

Editor:

We noticed in the May 12 issue of AIR CONDITIONING & REFRIGERATION NEWS, on page 5 you publicized an earnings report of the Ben-Hur Products, Inc., datelined in Milwaukee.

Many of our customers have called this to our attention and are in the belief that this is the Ben-Hur Mfg. Co. It is evident that the article is misleading to the public.

The Ben-Hur Products, Inc. is not located in Milwaukee. We would appreciate a correction on the article. Ben-Hur Mfg. Co. is privately owned and we do not issue statements regarding sales and earnings.

H. A. UIHLEIN, President

MERCHANDISING ROLE NEEDS NEW DEFINITION

Westerlin & Campbell Co.
Chicago, Ill.

Editor:

I am confident that "One Foot in the Door" is going to mean as much to me as did "Great Day Coming."

Very possibly it contains an answer to a question that was recently asked of me, "What is your definition of 'merchandising?'" Unfortunately, the question was asked after the fifth highball. I'm afraid that I did some real merchandisers an injustice.

Actually, I suppose my definition would describe merchandising as the utilization of every honest method to present the legitimate features of the product until prospect is a user.

If you have not reduced "merchandising" to one sentence in "One Foot in the Door," I'd like to see the definition under the masthead at an early date.

F. B. FRAZEE

DUCT CLEANING FIRM USES COST-PLUS PRICE

The F. D. Crew Co.
Philadelphia, Pa.

Editor:

Among other interesting items in your April 14 issue is one titled "Cleaning Air Ducts Keeps New Firm Busy," which we have read with particular appreciation, for we, too, clean ducts, not as a sole source of livelihood but as part of our business.

We have found by experience that it is indeed difficult to estimate with a reasonable degree of accuracy the cost of cleaning ducts. In consequence, we found on some jobs we were too high and on others too low in price. Unfairness resulted, either to the customer or to ourselves.

We, therefore, determined to inaugurate a single basis for cleaning ducts, and this we have found, over a period of some 14 or 15 months, has been acceptable to our clients and has proven uniformly equitable.

This basis is to clean the ducts on a cost plus basis, charging for time and material plus an agreed markup.

GEORGE J. GARDNER

COMMON MAN AWAKENS TO SERIOUS SITUATION

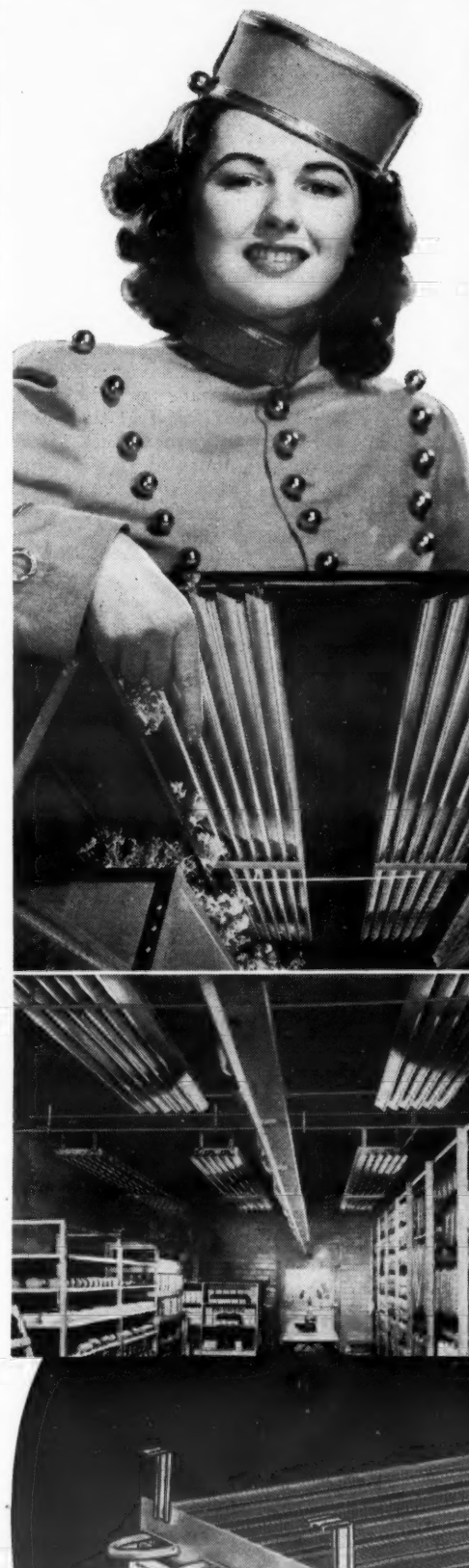
408 State Tower Bldg.
Syracuse 2, N. Y.
April 14, 1947

Editor:

I enjoyed the several issues of "Inside Dope" in which you treated with a serious national, international problem. It has been indeed good to see the gradual, though slight, awakening of "the common man" to the seriousness of the present situation.

If the tempo of their awakening during the last 60 days can be maintained for another year, things will look at lot brighter.

GEORGE W. MEEK,
Consulting Engineer

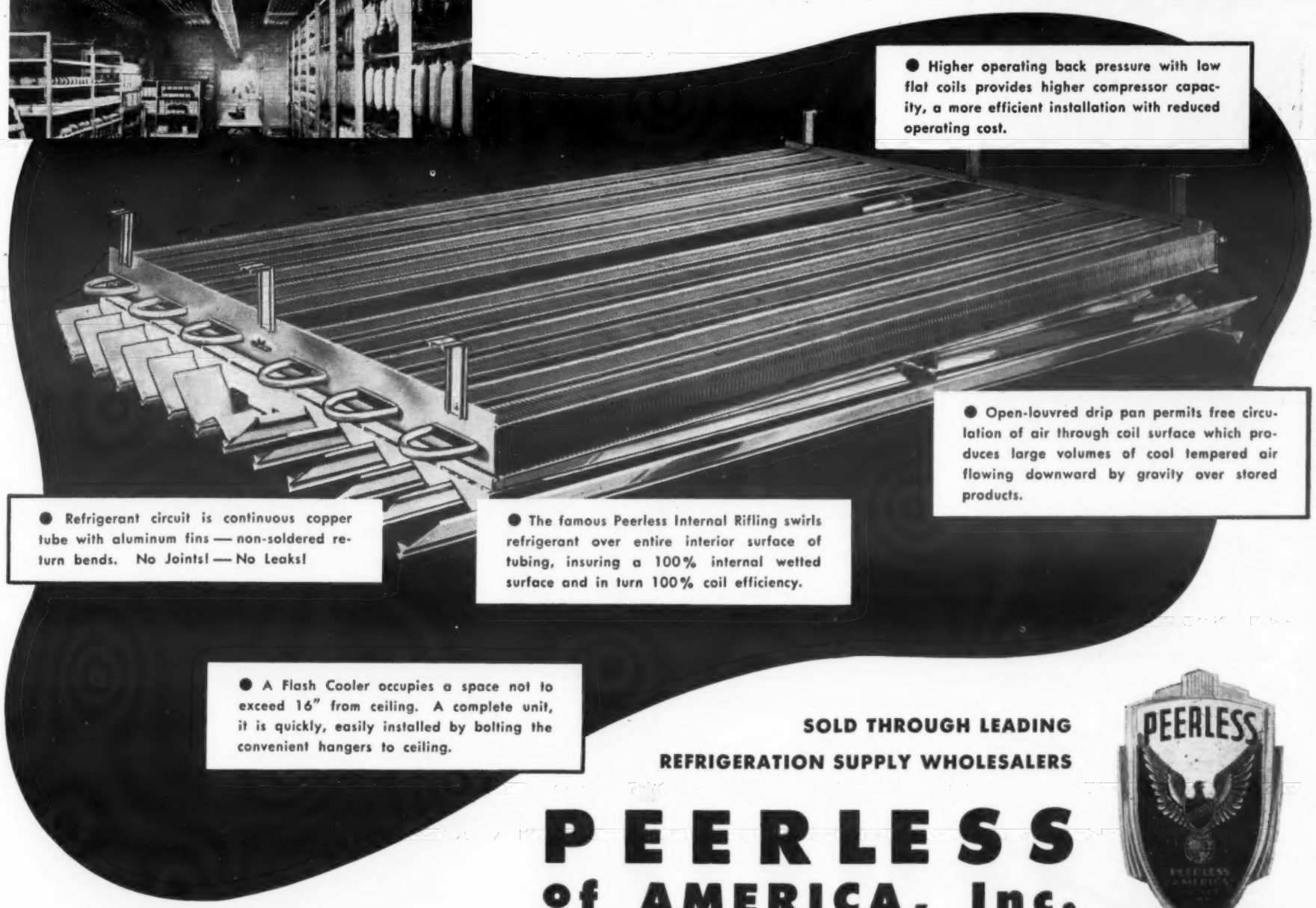


For Positive Maintenance of HIGH HUMIDITY...

PEERLESS FLASH COOLERS!

● Where coolness without dehydration is essential, PEERLESS Flash Coolers give the desired performance. These are the original Flash Coolers, introduced 15 years ago by PEERLESS, and improved to their present high-efficiency in the refrigerating of cut meats, flowers, and all products where high humidity must be maintained. Wide, shallow coils spread under ceilings enable these units to deliver large volumes of cooled air with high relative humidity. Install them in cold storage boxes, walk-in and reach-in refrigerators, for retailers, wholesale houses, packing houses. Better preservation of products by PEERLESS Flash Coolers brings customer satisfaction.

For superior performance specify all these PEERLESS products: Flash Plates, Flash Coolers, Unit Coolers, Ice Cube Makers, Fin Coils, Off Center Coils, Expansion Valves and Capacity Boosters. Write for Details.



● Higher operating back pressure with low flat coils provides higher compressor capacity, a more efficient installation with reduced operating cost.

● Open-louvred drip pan permits free circulation of air through coil surface which produces large volumes of cool tempered air flowing downward by gravity over stored products.

● Refrigerant circuit is continuous copper tube with aluminum fins — non-soldered return bends. No Joints! — No Leaks!

● The famous Peerless Internal Rifling swirls refrigerant over entire interior surface of tubing, insuring a 100% internal wetted surface and in turn 100% coil efficiency.

● A Flash Cooler occupies a space not to exceed 16" from ceiling. A complete unit, it is quickly, easily installed by bolting the convenient hangers to ceiling.

SOLD THROUGH LEADING REFRIGERATION SUPPLY WHOLESALERS

PEERLESS of AMERICA, Inc.

General Sales Offices 2901 Lawrence Ave., Chicago 25, Illinois, U. S. A.

Is Yardstick of 'Man Hours' Needed To Cut Present Distribution Costs?

'Experts' Say That Sales Forces Don't 'Produce' as Much Per 'Man Hour' as Production Workers Do

CHICAGO — The yardstick of "man-hours" is badly needed in the field of distribution costs today. So says Fenton B. Turck, president of Turck, Hill & Co., industrial engineering firm.

In an address at the national marketing conference sponsored here recently by the Chamber of Commerce of the United States, Mr. Turck emphasized:

"Up to the present, the man-hour has been a yardstick applied to only half our industrial economy, the production half. It is now proposed that we apply it to the distribution half as well."

The application of the man-hour to distribution activity would tend to increase its productiveness, and, he said, would thus have some very definite advantages.

"Business management can dissipate the impact of a buyer's strike by increasing distribution productivity," Mr. Turck pointed out. "The result of increased productivity would be a 22% reduction in average consumer prices. This achievement is possible through the practical application of improved methods and not the use of theoretical cuts in wages, profits, and merchandising discounts."

Though well-tried in the field of production methods, the man-hour concept isn't being used in the estimation and regulation of distribution productivity. According to figures cited by Mr. Turck, a labor force of 10,000,000 engaged in distribution services in 1939 had only two-thirds the productivity of 8,850,000 factory employes who actually worked less time.

Using data on 1939, the last normal peacetime year, Mr. Turck disclosed that the distribution force of 10,000,000 turned out services worth $44,239,000,000. When equated on a 40-hour week and a 50-week year the figures equalled $2.17 per man-hour for distribution.

With the 8,850,000 production men, however, the picture was considerably different. They worked 40 hours a week for only 45 weeks a year to produce $56,843,000,000 worth of merchandise. That comes to $3.57 per man-hour.

"In larger terms," Mr. Turck commented, pointing the matter up, "it means that one-half of our entire industrial economy has only two-thirds the power of the other half."

Pinning It Down

Where the production half is able "to place exact evaluation upon all existing production procedures and to appraise the merits of proposed improvements," distribution has had to weigh such plans against a host of "intangibles." "The many intangibles of distribution will decrease, however, if management will only use the man-hour to pin them down," he said.

"The best way for management to approach the problem of increasing distribution productivity," Mr. Turck stated, "is by careful analysis of all its corporate operations, from the largest to the smallest. . . . Three general approaches will be found useful in almost every case."

These are: the reduction of physical handling of material, the reduction of unessential distribution functions, and the knowledge and control of distribution functions and costs.

Method Is Suggested

Among the methods suggested to combat excessive physical handling of a production down through distribution channels were:

1. Time and motion studies.
2. Product-flow surveys.
3. Product handling facilities.
4. Plant and store layout.
5. Structural redesign.
6. More efficient clerical systems.

In the matter of unessential distribution functions this would entail primarily the elimination of overlapping functions of producer, wholesaler, and retailer.

The third, and "one of the more progressive," methods of improving the productivity per man-hour of distribution, means knowing and controlling distribution processes. Mr. Turck cited the following methods as the most effective means of understanding distribution functions and costs:

1. Market surveys.
2. Sales analyses and research.
3. Studies of customer relations and requirements in product design.
4. Full analyses of sales territories for increased usage and new business.
5. Cost accounting, budgeting, and control of individual functions or services for basic pricing policies and consumer price reduction.
6. Evaluation of productivity of a sales organization.
7. Stabilizing of both seasonal and cyclical demand for specified products.
8. Recording of field data.

Admitting the limitations of even such a thorough program as this, Mr. Turck continued: "Obviously no one method alone can produce overwhelming changes in distribution productivity. Various methods must be applied in many separate functions of distribution to promote sizeable over-all improvement."

Working In Practice

He then illustrated how productivity can be raised by adjusting the allotment of man-hours to a given function according to its importance in the over-all distribution picture. Two firms increased distribution productivity by careful selection of markets. The first company eliminated all sales areas where coverage did not reach a minimum of $125 per man-hour. The second company confined its interest to customers who could be reached with an expenditure of less than 13 man-hours per ton.

By the use of improved material handling facilities, a leading chain-store reported it had saved an average of four man-hours per truckload.

By devoting one-third of its salesmen's time to the gathering of information on its customers, another company was able to develop the productivity of salesmen from $55 per man-hour to $90.

By allotting more of the salesmen's time to screening prospects to separate bona fide from casual inquiries, a Detroit manufacturer was able to slash total distribution man-hours in the company by 30%.

"The goal of increased distribution productivity is, of course, to maintain current distribution power with fewer men, or improve the power with the same men," Mr. Turck went on. ". . . Any engineering study of man-hours should result in a reduction of total distribution man-hours, but not necessarily a reduction in man-hours for each individual function of distribution. . . .

Foresees Vast Gains

"The full impact of improved distribution productivity on the American economy is beyond my ability to visualize. The scope is too wide and complex. Just as the over-all improvement in plant operation is the result of many single engineers working in single production departments, so over-all improvements in distribution will only be realized from thousands of individual efforts. . . .

"Not only do I believe that distribution power can be increased, however, now that the man-hour provides an engineering basis for measuring it, but also I believe that it *must* be increased. To take the long view, production is at present so efficient generally that it cannot be relied upon to contribute much more to lowered prices and consequent increase of consumer demand. Clever advertising and marketing must increasingly be called upon to do this. . . .

"We are approaching something

(Concluded on next page)

SKYROCKET SUMMER SALES WITH SNO-BREZE EVAPORATIVE COOLERS

PERFECTED IN THE TESTING GROUND FOR COOLERS — THE ARIZONA DESERT!

Can be installed on roof or on outer wall. A complete range of sizes — 2,500 to 20,000 CFM. Immediate deliveries. Write for free catalog.

Palmer Manufacturing Corp Phoenix, Arizona

A MASTERPIECE in Thirst-quenching Convenience

OASIS ELECTRIC WATER COOLER

You're always *Sure* with an Oasis-built by Ebco, pioneers in the electric water cooler field.

The EBCO Mfg. Co.
401 W. Town St.
Columbus 8, Ohio

NOW...Amazing Dryness

MAKES NEW LOW-TEMPERATURE REFRIGERATORS

Control samples of "Freon" are regularly taken from the production line.

Sample of the finished product is drawn from 145-pound cylinder for qualitative analysis.

See Gains If Better Use Is Made Of Distribution 'Man Hours'

(Concluded from preceding page)

unknown for eight years in the United States—a buyer's market. The Cassandras of economics predict that a buyer's market will be disastrous for American industry. In saying this, they ignore the full potential of our industrial power, but in view of present distribution conditions, they are probably dead right.

"During eight years in which most of our industrial product was figuratively, sold before it was made, our distribution power has atrophied from disuse. There is a serious shortage of trained personnel, so much so that a buyer's market matched with present distribution power might turn out to be Pearl Harbor to our economy, destroying many individual large and small companies alike. . . .

"If this increased distribution productivity can be brought about before the halt of the postwar buying surge, threat of a buyers' strike would be minimized. But the improvement cannot come too quickly, for past experience indicates that, once buying momentum slows down, it takes a major readjustment to re-establish a healthy turnover of commerce."

Summing up, Mr. Turck said: ". . . production power [is] almost limitless if it can be absorbed without interruption by that increased distribution power made possible through more effective use of our 20,000,000,000 annual distribution man-hours."

In rebuttal to the speaker's arguments, however, some retail executives at the meeting stressed the vital "human element and consumer choice in retailing."

As another retail authority put it: "Man-hour productivity in industry looks big, but it is really due to machinery, to invention. There is no exact parallel for this in the distributive process, unless it is to become purely automatic. . . ."

Many agreed that when the retailer is limited by such factors as consumer demand, its timing, and freedom of choice the expense of distribution becomes difficult to regulate.

Electrical Wholesalers Double March '46 Sales

WASHINGTON, D. C. — Wholesalers of electrical goods sold $260,000,000 worth of their merchandise during March, 1947, to more than double their total for the same month last year, the U. S. Department of Commerce has revealed.

Total wholesale sale of durable goods amounted to $1,736,000,000 in March, 1947, an increase of $660,000,000 over March, 1946, the Commerce Department reported.

All wholesalers, of both durable and non-durable goods, reported sales amounting to $5,105,000,000 in March, a 26% gain over last year.

Small Individual Units Replace Old Central System In 175-Bed Hospital

Aid To Purchasing, Control, Kitchen Efficiency

FORT WAYNE, Ind.—Three large reach-in refrigerators have been installed and a five compartment walk-in cooler has been completely renovated at the 175-bed Lutheran hospital here by the McCray Refrigerator Co., and demonstrates what can be done in modernizing hospital installations.

These units replaced a manually controlled ammonia plant using brine as a cooling medium, which had proven inadequate for the needs of the hospital's kitchens, they said.

As completed, the installation provided the hospital with adequate storage for quantity purchasing; segregation of foods for better inventory control; convenience, location, and adequate capacity of reach-in refrigerators for efficient kitchen operation; and multiple condensing unit installation for maximum efficiency of refrigeration conditions, operating costs, and protection of perishable foods, they declared.

One 60-cu. ft. capacity reach-in refrigerator, Model RT-661S, was placed in the diet kitchen and another in the main kitchen for general purpose storage, they explained.

A 40-cu. ft. box, model RT-441S, equipped with pan slides for storage of prepared salads, was also put in the main kitchen.

The walk-in cooler was rebuilt and re-equipped with forced convection refrigerating units. The individual compartments were designed to store dairy products, frozen foods, vegetables and fruits, meats, and left-over foods.

Each of these types of food products, McCray officials said, were segregated to provide the best temperature and humidity conditions for their respective storage characteristics.

The refrigerating machinery required for the cooler, they asserted, was selected to give (1) maximum control for the various temperature, humidity, and storage conditions required, (2) security in case of individual break-down, and (3) efficient operating and cost characteristics.

To operate the three reach-in refrigerators, they installed a ¾-hp. water-cooled condensing unit. For the meat, vegetable and fruit, dairy products, and left-over compartments in the storage cooler, they used a 2-hp. water cooled condensing unit. For the frozen foods compartment, they used a ½-hp. water cooled unit.

Housing Head OKays Theatre Cooling Job

WASHINGTON, D. C.—The Office of the Housing Expediter recently approved the application of the Essex Amusement Corp. of Newark, N. J. to air condition a motion picture theater at a cost of $26,915.

Norge Plant Chiefs

O. H. Shenstone G. P. Kennedy

* * *

Shenstone, Kennedy In Top Norge Plant Posts

DETROIT — O. H. Shenstone has been appointed Norge factory manager in charge of three of the company's refrigerator plants, it was announced today by Howard E. Blood, president of the Norge division of Borg-Warner, following the resignation of John C. Buchanan as manager of the Norge division plant in Muskegon Heights, Mich.

At the same time, Mr. Blood announced that G. P. Kennedy has been named resident manager of the Muskegon Heights factory.

Mr. Kennedy is a veteran of 16 years experience with Norge, having been with the company since 1931. He has served in the capacities of chief inspector, resident engineer, general superintendent, chief tool engineer and assistant plant manager. Mr. Kennedy is considered one of the outstanding engineers in the country and has a record of many unique achievements to his credit, it is reported.

In disclosing the shifts, Mr. Blood stated that Mr. Buchanan, who has been with the organization since 1928, has resigned of his own volition to accept a position as manufacturing executive for the Norris Stamping & Mfg. Co., in Los Angeles.

Mr. Shenstone has been with the company since 1942, when he was appointed manager of the Norge Machine Products plant in Muskegon, Mich.—then a newly-acquired factory starting production on gun mounts and other war products.

This ton drum of "Freon" contains only about one-third of an ounce of moisture!

Technician feeds "Freon" sample through infra-red beam as spectrophotometer dial records moisture absorption of the ray.

of "FREON"

POSSIBLE AND PRACTICAL

Samples analyzed with infra-red rays prove "Freon" refrigerants contain almost no moisture

"Freon" refrigerants have long been known for their exceptional dryness. Now, to meet the need for lower temperatures to store frozen foods in household quick-freezers and locker plant refrigerators, these refrigerants are made drier than ever before . . . containing less than 10 parts of moisture in a *million* parts of "Freon"!

Because frozen food compartments held at 10°F. or less require lower evaporator temperatures and the temperature of expansion valves (small capillary tubes) is at least 15°F. lower than previously used in electrical refrigeration, the dryness of the refrigerant has become even more important than in the past. Moisture *must* be kept out of the system to prevent formation of ice in valves and tubes.

As a result of extensive research, and with the installation of additional manufacturing equipment, "Freon" refrigerants now are produced virtually anhydrous. To determine their minute moisture content, a simple, fast, accurate and reliable specification method was devised.

This utilizes a spectrophotometer in which moisture-absorbing infra-red beams are passed through samples of "Freon." The instrument measures the amount of water present with an accuracy of *one part per million*. It allows both control of production and analysis of the finished product . . . insuring the quality, purity and dryness of every ounce of "Freon" for commercial, industrial and household applications. For technical data, write — Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Delaware.

OUTSTANDING FEATURES OF "FREON" SAFE REFRIGERANTS

1. Freedom from moisture . . . now less than 10 parts per million.
2. Narrow boiling point range—confined within limits of ½°C.
3. Less than 2% of air in vapor phase.
4. Freedom from acids. There are none in "Freon".
5. Freedom from high and low boiling products.
6. Non-toxic . . . non-flammable . . . non-explosive.

KINETIC

FREON

REG. U. S. PAT. OFF.

safe refrigerants

FREON IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS AND PROPELLENTS

It's a REVELATION *—that's all!*

★ Exclusive Dealer Franchise

★ Now in quantity production

★ All sizes: Industrial and Commercial

★ The last word in...

ELECTRIC WATER COOLERS

Revelation Company

Division of

Interstate Engineering Corporation

2600 Imperial Highway

El Segundo, California

INSIDE DOPE

by GEORGE F. TAUBENECK

(Continued from Page 1, Column 1)

How Can We Miss?

That the coming recession won't last long, though, or be painful, nobody should doubt. Anyone who takes the pains to examine the *favorable omens* for a long period of prosperity and high business volume is bound to admit that only Herculean blunders can stop us from enjoying a long boom period.

To begin with, *many business tragedies have been avoided in advance.* Our banking system now operates under a complicated and not-easily explained set of national guarantees. As this system works now, it's difficult to see how its equilibrium can be disturbed seriously. Thus, the tidal wave of bank failures which introduced the devastating depression in the 1930's surely won't be repeated in the 1940's.

Nor is the average individual bank depositor likely to lose his deposits in any economic "washout." Because his modest savings are guaranteed by law, he won't feel the compulsion to withdraw them—thus starting a disastrous "run on the banks" when "things get tight."

Second, *large-scale farm foreclosures aren't possible today.* For the first time in four decades, the farmers have become the white-haired boys of our nation's economy. Their cash income has multiplied so gratifyingly during the last few years—and the continued need for foodstuffs on the part of an undernourished world is so great—that practically nothing can hurt most of them in the foreseeable future, it would seem. What's more, farm mortgage indebtedness is now at an all-time low point.

Like the banks, the farmers aren't likely to collapse. They're both "sitting pretty."

Third, *individuals who lose jobs are protected by social security funds.* Today, whenever a man is laid off, he can draw "eatin' money" from the public treasury until he finds a new job. That wasn't true in previous recessions and depressions.

Fourth, *deferred demand must be satisfied.* World War II was the first "total" war. We all worked like dogs, whether we were in uniform or overalls—but we didn't get much in the way of material blessings for our work.

While we fought or labored, everything we owned deteriorated, because it couldn't be repaired, replaced, or protected. And in all nations but the United States, capital goods (homes, machinery, savings, factories) were destroyed. Eventually all these things will be replaced.

Furthermore, a great many of the things we probably would have bought during those five years—had we been leading normal lives—couldn't be had then—so our accumulated wants for new conveniences—are still unsatisfied.

We're still waiting for a lot of those needed and longed-for items. We want new cars, new suits, new shoes, new houses, a new refrigerator and other home appliances, new furniture, a long vacation in the Rockies or at the seashore, or possibly a television set. Somehow, some way, we intend to satisfy those accumulated longings darned soon. And we will, too, if given a chance to work and earn.

After a terribly long period of self-denial, we want to have fun, to show off our possessions, and to improve ourselves. Most of us are ready to spend all our current income, plus some of our savings, to gratify these desires. It follows that pent-up desires should stimulate American business for many years to come.

Fifth, our population is increasing, and new families are being formed. The war stimulated marriages and births enormously. Each new family unit, and each new baby (and there are millions of 'em) adds to the market for consumer goods of all kinds. This trend has curved upward so sharply in the last three years that it has upset the calculations of many of our best market planners.

Births and marriages call for homes—and expanding needs for home appliances, food, clothing, and practically everything sold by retailers. Long-term, this economic fact-of-life is perhaps the most sustaining of all the arguments we can marshal to prove that "good times" are on the way. Pent-up wants are encouraging to the merchandiser. But *absolute needs* (which all new family units have) are cash-in-the-till.

New Class of Prospects

Sixth, *the "little people" are in the middle-class brackets now.* With their rents frozen, and their current earning power at an all-time high peak, millions of families which never dreamed of acquiring luxury goods before are now in the market for everything from a fur coat to an air conditioning unit, and from a home freezer to a seven-room house.

During the war, when nearly everyone in the family worked, and when five machine tenders in one family (each paying his own income taxes) together could salvage more real dollars than many a corporation president, the savings of "little people" mounted amazingly. What's more, their current earnings are keeping them in middle-class income tax brackets.

This fact, combined with the tremendous expansion of our population and family units, sets entirely new goals for all mass merchandisers. (It has been estimated that, since 1940, our total population has increased by 11 millions, and that the number of new families has expanded by over 4 millions.)

The number of employed citizens has increased by 12 millions, and the average weekly earnings of these working people are up nearly 75% over 1941. Families (and comparable single spending units) whose annual incomes are more than $2,000 have leaped from about 8 millions in

(Concluded on next page)

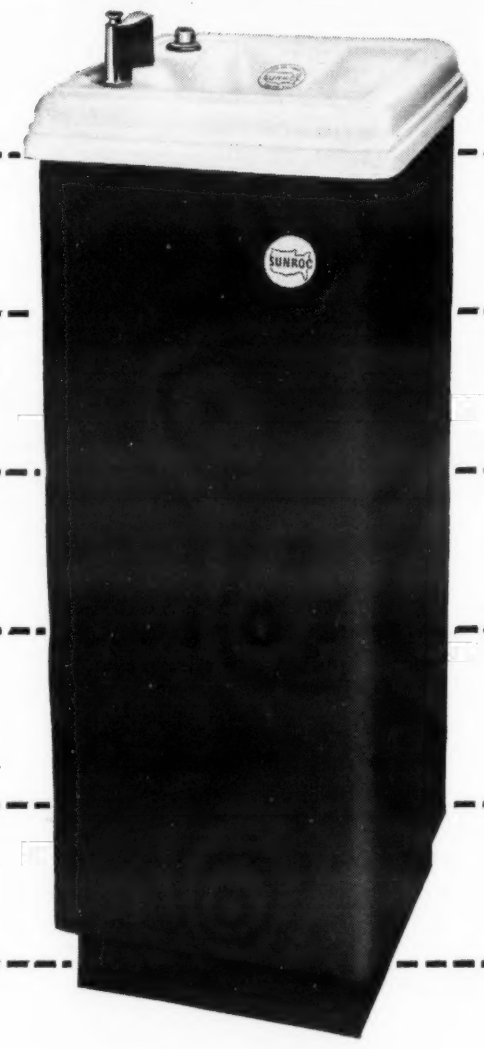
Which water cooler is maintaining the lowest retail list price?

Which water cooler has the longest record of Government service?

Which water cooler is available for delivery now?

Which water cooler is backed by the most ambitious merchandising program in the industry?

Which water cooler is "the best value for the money"?



The Answer, of course, is SUNROC!

And SUNROC is the answer to *these* questions: 1. Which water cooler best insures customer satisfaction? 2. Which water cooler is the easiest to sell? and 3. Which water cooler will send dealer profits soaring?

In water coolers—SUNROC leads on all counts. So hitch your business to this selling star. The coupon below is your first step toward a Sunroc Franchise. Sunroc Refrigeration Company, Glen Riddle, Pa.

SUNROC Water Coolers
GLEN RIDDLE, PA.
"SUNROC SERVES THE WORLD . . . a Cool Drink of Water"

Distributors throughout America and in 30 Foreign Countries
Branch Offices in Principal Cities

SUNROC REFRIGERATION COMPANY
GLEN RIDDLE, PA.

Without obligation, please send details of the Sunroc line and Sunroc Franchise for ☐ Distributors ☐ Dealers (check which).

Company_____
Address_____
City_____ Zone____ State_____
Address to Mr._____ (AC5)

TEMPERATURES Made To Order with TYPHOON AIR CONDITIONING

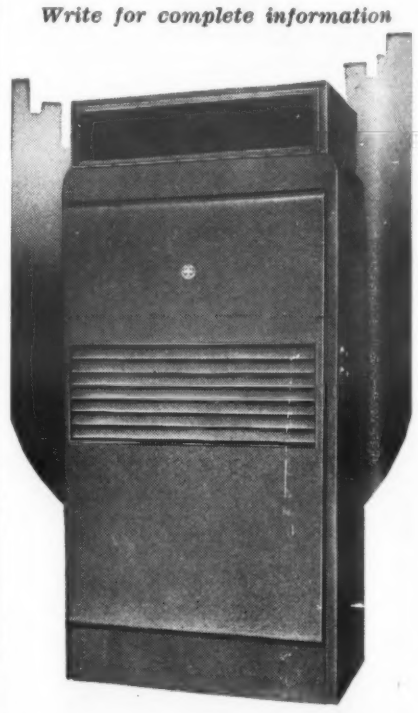
The handsome compact appearance of the TYPHOON self-contained air conditioning unit belies its rugged construction—an engineering achievement backed by over 30 years of practical experience.

Each unit is made to deliver full rated capacity under most difficult conditions—12,000 BTU's of air conditioning performance for every ton of rating. TYPHOON's exclusive large flo-turn cooling coils and the oversized all-copper condenser, are two of the many features that make for trouble-free performance and maximum customer satisfaction.

TYPHOON UNITS ARE BEING PRESOLD BY NATIONAL ADVERTISING

A few dealer territories are still open

Write for complete information



Complete air conditioning: Cooling, filtering, moisture removal, non-draft circulation — easy to install — low upkeep—3-ton, 5-ton, 7-ton sizes — full rated capacity.

Dept. S12

TYPHOON AIR CONDITIONING CO., INC.
Division of Ice Air Conditioning Co., Inc.
794 Union Street Brooklyn 15, N. Y.

INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from preceding page)

1941 to a record 25 millions today.

And then there's that savings angle. Back in 1941 the average family had "in its pockets" (bank accounts, and government bonds) a total of $1,551 in what the economists call "liquid assets."

Right now the average family has $3,885 in the sock. (Adding things up, the average family in 1941 had a total buying potential, in income and savings, of $4,053. Now that same family has $7,665 ready to spend if it wants to, or if necessary).

The price of a small automobile in 1941 was equivalent to 49% of the savings of the average family. Now it's only 25.9%.

Taking the combined savings and income figures, this small car represented 19% of the average family's buying power in 1941, as against 13.2% now.

So, it would seem that they'll keep on buying cars for quite a spell.

Look at these figures—then take a hitch in your pants. The impact of this upsurge in the number of "prospects" for your salesmen should give you a tiny glimpse of the vast opportunity for all business men. If grasped intelligently, this manifold opportunity will underwrite and bolster the coming Boom.

The Phantom Frontier

Seventh, NEW THINGS will soon appear. They'll add to our wants, they'll make us work hard until we get them, and they'll encourage investors.

Most of these NEW things are still "under wraps." Manufacturers have been so busy trying to satisfy deferred wants that they haven't had the chance to introduce these wonderful improvements on their old products, and the startling innovations which their engineering departments have perfected. But they will—just as soon as a slackening demand for their prewar items permits them to gamble.

During Depression Days, superficial economists like Stuart Chase mourned the "passing of the "frontier" in American life. Because a free homestead could no longer be had for the asking, these lugubrious observers believed that the United States was dying of a slow, cancerous disease.

'You Ain't Seen Nothin' Yet'

But Stuart Chase and his followers overlooked entirely the fact that *new inventions* and technological progress have done far more to expand production and earnings in this country than the availability of free land ever did.

And, as the old-time magician used to say, after performing a slick trick: "You ain't seen nothin' yet."

Somewhere in the curtained recesses of America's laboratories a detective might find ideas which—when they are allowed to burgeon—may rival the railroad, the automobile, and the radio as miraculous prosperity-lifters for our nation and for the world.

Although wars destroy far more assets than they create, we must admit that the forced speed-up of our continuing technological revolution which wartime stresses encourage ("to hell with the cost—go ahead and try") does produce scientific and engineering miracles.

Hey! Look What's Coming!

If anyone who reads these lines still worries about America's eventual progress, he can gather renewed strength-of-heart by contemplating the probably great future of the following new developments which promise much:

Electronics, air conditioning, frozen foods, germ-destroying lights, weed eradicators, centrifugal forging, fascimile reproduction, seed pelleting, the gas turbine, jet-propulsion, powder metallurgy, penicillin and the sulfa-drugs, fluorescent lighting, the amazing plastics family, new mechanical tools for scientific agriculture, and the application of mass production principles to a long list of every-day items which all of us use every day in the week.

And, of course, there's atomic power—which will either obliterate civilization or elevate it to unknown heights. Only God knows to what heights—or depths—it will lead us. Let us hope for the best.

All these promises of technological Heaven-on-Earth—which will flower if we let them—add up to a long period of sustained demand for American industry's products. We Americans want the Best Things First. And we'll work like beavers to get them. "Pride of Possession," it has been proved over and over again, is always the best motive-to-buy whenever the imagination of prospective, qualified purchasers has been titillated.

So, when the new-product cat finally is let out of the bag, you can feel sure that eager buyers will run as fast as they can so as to be the first among their neighbors to capture and exhibit said "cat."

Eighth, public approval of these NEW THINGS will resurrect the capital market. Large accumulations of savings—frozen during the last decade or so—will thaw out when the opportunities for profit in primary investments in public power, transportation, agricultural mechanization, engineering progress, and exciting inventions, become attractive.

World-Wide WPA

Ninth, whether we like it or not, our nation is committed to a grand-scale subsidization of its export business. Under the guise of combating the spread of Communism, it appears that we will be pouring out our produce into insatiable foreign markets for many years to come.

This policy may be reversed. But if unemployment sets in, and business curves dip downward, you can bet that we'll give away *billions of dollars* abroad to support dying-on-the-vine economy.

Inasmuch as the needs of a starving, war-wrecked world are well-nigh insatiable, the pursuance of this support-everybody-everywhere policy should maintain the output of our industries at an all-time peak—even if other favorable omens fail.

Any way you look at it, the next 10 years should be wonderful.

Of course, anyone who has read our "World War III" essay might say: "Yes, all this optimism is fine and dandy. Probably we shall enjoy great business volume for awhile. But after that comes the Deluge."

Granted that the next decade will be prosperous: what does it profit a man to gain the whole world only to lose his life and his possessions in another total war?

Best answer for that question is to cite the case of the condemned murderer who "ate a hearty breakfast" before he was electrocuted. The Lord only knows what's in store for us 10 years from now. If that decade promises to be active, profitable, and *fun,* let's enjoy it.

TRACE
REFRIGERANT LEAK DETECTOR

THAWZONE
PATENTED
The PIONEER FLUID DEHYDRANT

TRACE . . .
. . . . . ITS STABLE VIVID COLOR REVEALS LEAKS INSTANTLY.

THAWZONE . . .
. . . ACTIVE, CIRCULATING . . . DESTROYS MOISTURE CHEMICALLY, ECONOMICALLY, EFFECTIVELY.

HIGHSIDE CHEMICALS CO. 195 VERONA AVE. NEWARK 4, N. J.

Ask Your Jobber for
HASCOBILT *Parts*
SUCTION *and* DISCHARGE VALVE, DISC, REEDS *and* SPRINGS
for Conventional and Hermetic Type Compressors
HASCO, INC. GREENSBORO, N. C.
If your jobber can't supply you, send for illustrated catalog and price list.

THE ELPECO LINE

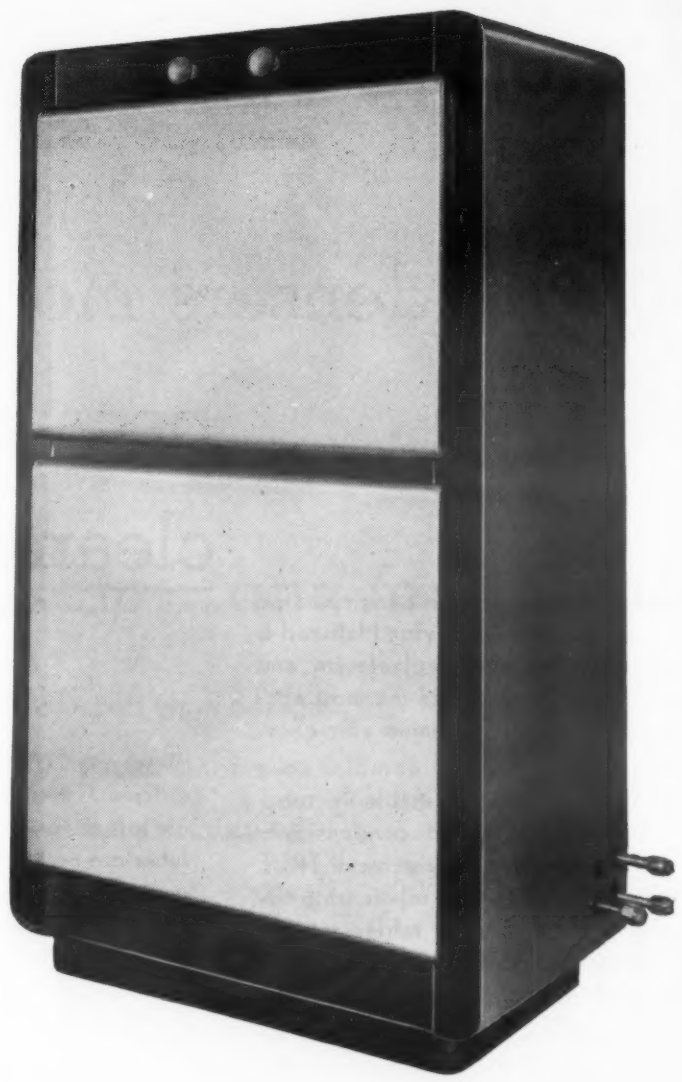
THERMOTRON — flow control
UNITRON — unit cooler
CUBEOTRON — ice cube maker
CAPACITRON — capacity booster
EXOTRON — condenser
CONDENSOTRON — condensing unit
THERMEK — heat transfer surface

A new Elpeco Profit Maker

THE "DRAGONAIRE 192"
1½ H.P. Water Cooled Self Contained Air Conditioner

THE PATH TO PROFITS

- *An Important, Hard-to-Get Rating*—19,200 BTU/HR.
- *Priced Right*—The selling price is low and so is your cost.
- *Adequate Profit Margin*—Here is a chance to make some real money.
- *New Sales Features*—Compressor compartment cooling coil adds 15% more capacity, reduced operating cost, smaller size.
- *Supporting Promotion Program*—Application help, sales literature, direct mail, publication advertising.
- *Delivery Now*—Important to profits so you can satisfy the demand now.

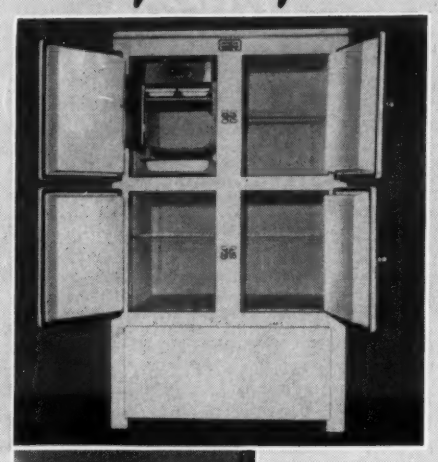


ELPECO GREEN DRAGON

For information on the "Dragonaire 192", see your Elpeco wholesaler. Merchandisers are invited to write, wire or phone for full details on the Franchise. R-3

ELECTRIC POWER EQUIPMENT CORP., 412 North 18th St., Philadelphia 30, Pa.

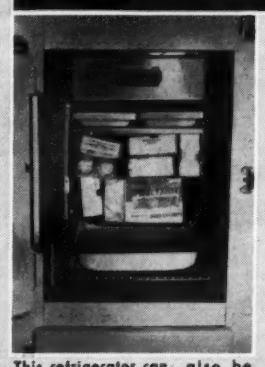
Step Up YOUR REFRIGERATOR Profits!



WITH THIS GIANT
22 CU. FT. COMBINED
FREEZER-REFRIGERATOR

Many families are looking for more refrigerator space and you can give it to them with this new, "Modern" unit.

The "Modern" is a quality refrigerator in every respect — with standard mechanical parts, and equipped with a heavy duty compressor. Improved chromium hardware, chromium plated shelving, and new stainless steel frozen food compartment, plus the ice maker — make the "Modern" a true all-purpose refrigerator — a refrigerator and freezer combined.



This refrigerator can also be furnished in larger sizes

This new unit costs only slightly more than other refrigerators containing less than one half the space of the "Modern."

Here is a refrigerator to supplement your present lines and help you obtain additional business among customers needing larger refrigeration space, at a price they can afford to pay.

Mail us the coupon below for prices and merchandising plan for increasing your profits!

U. S. Grant Supply Co.
1154 S. Hill Street
Los Angeles 15, Calif.

U. S. Grant Supply Co.
1154 S. Hill Street, Los Angeles 15, Calif.
Please send me complete information on the profit possibilities of the "Modern" freezer-refrigerator.

NAME

STREET

CITY ZONE STATE

Ultraviolet Lamp Helps Refrigeration System Fight Mold-Forming Organisms

Part Played In Reducing Air-Borne Organisms, Odors Cited In ASRE Talk

By Allen J. Dusault, Engineer, Lamp Division, Westinghouse Electric Corp.*

It was less than 100 years ago that Louis Pasteur, after a series of experiments, proved that the formation of bacteria and mold on previously uncontaminated foods was the result of air-borne microorganisms.

This refuted the age old theory of spontaneous generation which claimed that animal and plant life was produced by a spontaneous combination of elements and etheral principles. Armed with this information, man has made many advances since then, but it is only within the past 10 years or so that we have found a practical scientific method of destroying this ever present air-borne menace.

Moist Surfaces Aid Growth

The most important factor limiting the storage period of meat and other foodstuffs are microscopic organisms which grow rapidly on moist surfaces. Modern refrigeration aids in the preservation of meat and other foods by retarding the growth of bacteria and mold which causes spoilage in the product.

However, even at normal cooler temperatures deterioration of the product is still possible for this lower temperature merely slows down the action of microorganisms but does not eliminate their power of spoilage.

The invention of the ultraviolet Sterilamp, a generator of bactericidal ultraviolet, made possible a practical means of destroying air-borne and surface bacteria and mold as well as reducing surface contamination and thus overcame the most serious factor in the storage of foodstuffs.

Has Lethal Wavelength

The Sterilamp is a low pressure mercury vapor lamp, whose radiation is largely at a wavelength of 2537 Angstrom units which is approximately the wavelength of maximum germicidal power and is lethal to all microorganisms known to man. The glass envelope has a high transmission for 2537 radiations and also transmits a few per cent of wavelengths below 2000 Angstroms which produce ozone.

Spoilage in the case of meats is generally caused by surface deterioration due to the action of mold and bacteria which is brought about by handling and air-borne contamination. Other changes both chemical and physical occur inside the meat, but to lesser degree than on the surface.

Dehydration Also Serious

Drying and dehydration is also a serious factor, and ironically enough, this is largely caused by the low humidity resulting from the operation of the refrigeration equipment. Dressed quarters of meat have a contamination of a thousand bacteria per square inch while retail cuts may have many million.

Whatever the initial number of bacteria on the meat surface, an extremely rapid increase commences within a short time, the rate of increase depending upon both the temperature and the relative humidity.

280 Trillion Cells

At an 80° F. temperature the bacteria will divide every 30 minutes, while at 40° F. they divide every hour. An original cell would theoretically number 280 trillion cells at the end of 24 hours in room temperature. Fortunately, unfavorable factors reduce the growth from these astronomical figures.

Both mold and bacteria infection are reduced by the action of bactericidal ultraviolet and the danger of any spoilage or loss due to bacterial contamination is therefore practically eliminated in areas receiving direct radiation.

In a series of tests in actual installation with Sterilamps located in coolers, it was found that the air-borne organisms were reduced by as much as 95%. This air disinfection is desirable for it prevents inoculation of the product with harmful air-borne microorganisms.

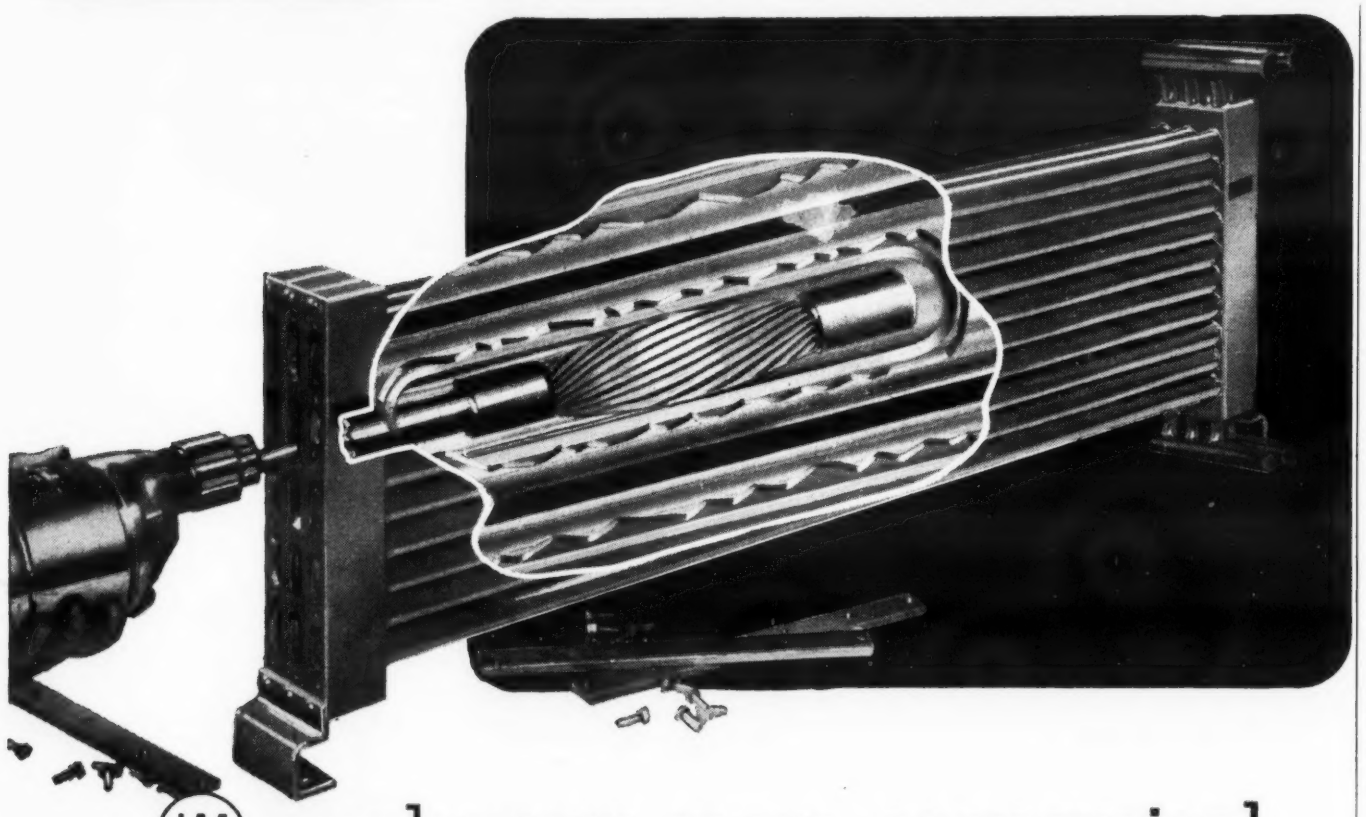
Ozone Fights Odors

However, these bacteria-destroying lamps perform another function. The shorter wavelengths of ultraviolet generated by the lamp in the 1850 Angstrom region have the power to produce ozone (O_3) in the air. Ozone is a great germicidal agent in itself and being a gas can diffuse throughout the refrigerator and reach all surfaces of the product that are out of range of the effective ultraviolet rays. This allotropic form of oxygen oxidizes odor molecules and thus serves another purpose by eliminating objectionable odors and preventing cross contamination of foodstuffs.

Another advantage of ultraviolet protection in the refrigerator is that the storage temperature may be raised a few degrees, for the natural increase in mold and bacteria due to higher temperatures is offset by the radiations produced by the Sterilamp.

(Concluded on next page)

*Paper delivered by Mr. A. J. Dusault to the Richmond, Va., Section of the American Society of Refrigerating Engineers, April 7, 1947.



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How Sterilamp Works with Refrigeration To Fight Mold-Forming Organisms In Air

(Concluded from preceding page)

With ultraviolet radiation present, the temperature may be increased up to 40° to 42° depending on local conditions. This higher temperature results in a reduction in the operating cycle of the cooling equipment and a rise in the temperature of the refrigerated surfaces, whereby less moisture is taken from the air with a resulting increase in humidity.

When Ultraviolet Not Used

In order to preserve meat in good condition in a refrigerator not utilizing ultraviolet, the temperature must be maintained at a low enough point to eliminate spoilage and excess trimming. If, however, the temperature is raised or relative humidity is increased, a more favorable environment for the propagation of mold and bacteria results, unless bactericidal ultraviolet radiation is employed.

In view of the fact that meat is composed of approximately 80% water, the high humidity is important so as to reduce shrinkage and dehydration.

Table I illustrates the loss in a 160 pound quarter of beef at varying humidities over a period of seven days. It should be noted that there is at least 75% less shrinkage over a period of seven days when the relative humidity is increased from 75 to 95%.

TABLE I

Length of Storage Days	Relative Humidity and % Loss in Weight 75%	80%	85%	90%	95%
1	.7%	.6%	.5%	.4%	.2%
2	1.4%	1.2%	1.0%	.7%	.4%
3	2.1%	1.8%	1.5%	1.0%	.6%
4	2.8%	2.4%	2.0%	1.3%	.7%
5	3.5%	3.0%	2.4%	1.6%	.8%
6	4.2%	3.6%	2.8%	1.9%	.9%
7	4.9%	4.8%	3.2%	2.1%	1.0%

Table showing shrinkage in quarter of beef at 40° F. under varying humidities.

It is recommended that the humidity of the cooler be increased up to 90% when utilizing Sterilamp conditioning. The Sterilamp serves a dual purpose in that it eliminates mold growth and reduces objectionable odors inside the box. The resulting clean surroundings and odorless air prevent off tastes in the product from odor bearing molecules.

Air Circulation Vital

Proper air circulation is an essential factor in preserving meat with ultraviolet radiation. The object of circulating the air in a refrigerator is to provide air motion so that the temperature in the various parts of the box will be equalized, and so that air which has been in the immediate vicinity of Sterilamps and which is thereby sterilized may dilute unirradiated air.

Furthermore, the 1850 radiation will produce ozone, and the air circulation, supplementing the natural high diffusion of ozone, will assure protection of food surfaces outside of direct, reflected or scattered radiation.

Convection Also Helps

Natural convection may be relied upon to supply the circulation in many refrigerators where the air passages are not obstructed and spaces are provided around and behind meat stored on shelves.

It has been found that the keeping time of fruits and vegetables is also increased when held in rooms that are irradiated with bactericidal ultraviolet. This irradiation of the air extends the time before mold, slime, and other spoilage develops, but precaution must be taken to prevent the direct rays from striking certain green vegetables such as lettuce and celery, for exposure of the leaves for several hours to short wave ultraviolet will cause brown patches to appear.

In Household Units, Too

The modern domestic refrigerator is also an ideal place for the application of ultraviolet. Even though we have many new developments in cabinets, refrigerators, temperature regulators, there are many factors beyond the control of the manufacturer, which serves to reduce the efficiency of the refrigerator when in actual service. Frequent door-openings, air-borne contamination of food, and mixed odors are factors we must cope with in attempting to obtain ideal refrigerators.

A low cost domestic refrigerator Sterilamp has recently been produced which now makes possible the incorporation of ultraviolet radiation in the modern household refrigerator. This lamp produces a regulated amount of ozone, as well as ultraviolet, which eliminates cross contamination of odors and tastes of sensitive foods and greatly improves the general cabinet odor. Bacteria and mold growth on the surface of foods is also practically eliminated.

In conclusion, it should be remembered that even though ultraviolet eliminates destructive microorganisms, it is not a substitute for good housekeeping and sanitary operation. A clean refrigerator is a prerequisite before installing ultraviolet lamps, for it is practically impossible to eliminate existing multiple layers of mold by irradiation with ultraviolet. With such sanitary conditions and overall irradiation of adequate intensity the anticipated savings will be realized.

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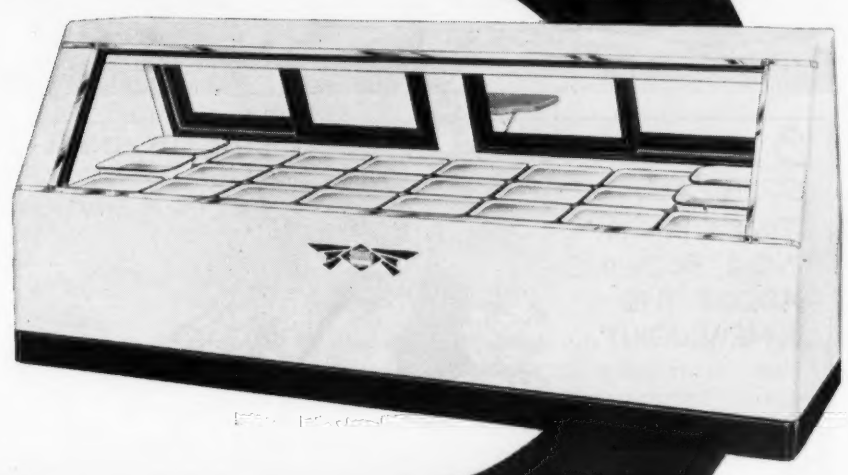

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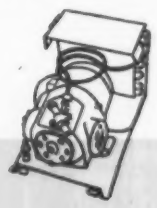

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BLAH-BLAH BLAH.
JIMMY HATLO
THANX TO "EX-BOSS" NEW YORK, N.Y.
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How're You Gonna Keep 'em Off the Farm?

"HOW you gonna keep 'em down on the farm, after they've seen Par-ee?" Well, let's see: Despite the legendary lack of interest in farm life which has been dramatized by the foregoing little ditty, many veterans of World War II are seriously considering casting their future lot with rural enterprises.

And this "back to the farm" movement is not surprising. When viewing the present strife and turmoil of an industrial existence, the comparatively peaceful routine of the farmer often appears to be quite attractive to the returning serviceman. It offers him, for example, a fair measure of security. And, at the same time, it promises him the opportunity of "becoming his own boss."

That latter promise is a glittering one to any G.I. who has had his fill of sergeants, "brass," and red-tape.

Another thing which appeals to the individualistic young American is the small amount of capital required to embark on a farm career, in contrast to the exorbitant sum which usually is necessary to launch so many small business enterprises.

One fairly recent survey has revealed the fact that around 60% of all United States farms embodied less than 100 acres in total size. More than 88% of these farms produced materials valued at approximately a $2,500 average each year. That survey was made before World War II, however.

Since that time, the rural life has been an exceedingly prosperous one. Prices of farm produce have been high, crops have been good, and farm machinery has been perfected to a high degree of efficiency.

The average American farm's produce was valued at $3,417 during 1944, and the average produce per farm worker was evaluated at $2,256. Those totals mounted and multiplied during 1945, 1946, and the forepart of 1947.

The total estimated value of farm land and buildings owned by our rural population equaled $50,295 million in 1945. But that was an exceptionally high figure—one which has not been matched since 1924. Mortgages on farms amounted to around $5,271 million at that time—the lowest figure for farm indebtedness since 1915. That amount was less than 10.5% of America's total farm property value. And today it is lower still.

The income of America's farmers is almost double that of the fabulous 1929 figure today. It has surpassed the previous all-time high of $24 billion a year by a wide margin. And, in addition to this lush current income, our farmers are said to possess more than $12,000,000,000 in savings and securities and around $4,000,000,000 in War Bonds.

"They never had it so good," as a G.I. would say.

There are about 6 million farms in existence in the United States. And, oddly enough, few of these farms ever change hands. Ownership shifts run at an average rate of 7% a year. Furthermore, farm families comprise one-fifth of our total population, or about 25 million people. They constitute a buying force which must be reckoned with by market analysts.

Summing it all up, the prospects for farming look mighty good. And these prospects are deserved—for those who have had actual experience in the bucolic life. Many pitfalls are in store for the layman farmer, however.

Life on the farm is not the bed of roses it may appear to be on the surface. True, it offers an excellent opportunity to "be one's own boss" for those who are familiar with the pattern of the pastoral existence. But you have to work hard, you have to gamble with the weather, and you have to know how to do what you're doing.

Nevertheless the man who owns a farm nowadays is patting himself on the back for being a smart fellow.

McEvoy Co. Begins Production on New 'Flash' Freezer Developed by Texas Group

17-Ton Machine Said To Freeze 20-400 Times Faster

AUSTIN, Tex. — "Flash" freezers, claimed by its inventors and developers as being able to freeze fruits, vegetables, and fish from 20 to 400 times faster, are beginning to roll off the "assembly" line at the McEvoy Co. in Houston, Dean W. R. Woolrich of the University of Texas College of Engineering announced early in May.

Dean Woolrich, one of the patent holders on the machine, said one of the company manufactured freezers is already in operation at the Alvin Canning Co., near Houston, and two more are now on the McEvoy floor, ready to be shipped out. The company hopes in the immediate future to be producing 500 machines annually and to fill, at least a portion, of a large backlog of orders.

The newly-perfected machine that utilizes a polyphase process has been six years in development. Several experimental models were built and tested at the University of Texas about five years ago, and then tested at various places. One of them was used at the Miller Brothers Canning Plant at San Carlos in the Lower Rio Grande Valley. With the beginning of production of perfected machines at the McEvoy company all the experimental models have been recalled, and the only machine now in operation is at the Alvin plant.

Dean Woolrich reported that patents on the machine and process that had been pending since 1941 had now been received. The patent on the process was granted to Dr. Luis H. Bartlett, a member of the University of Texas Bureau of Engineer Research, while the patent on the design and construction of the machinery was issued to Dr. Bartlett, Dean Woolrich and Howard E. Brown, assistant professor of mechanical engineering at the University of Texas.

Dr. Bartlett has been in Houston for nearly a year, assisting in setting up the machinery for the manuture, on a mass scale, of the freezer.

The McEvoy Company which is making the machines was engaged in the production of oil field equipment prior to the war. It is still a big producer of oil field equipment, and this is the company's first venture in frozen food machinery.

The secret of the new quick-freezing process is the use of a chilled polyphase fluid. For fruits, a solution of water and sugars is chilled and agitated until a slush of finely divided ice and cold syrup is formed. The product to be frozen is moved through the machine in a continuous flow on a conveyor and as each piece goes through it is covered with the finely divided ice and syrup that enables the product to be frozen immediately. The conveyor can be regulated as to speed, thus a product that is comparatively slow to freeze or one that is a fast freezer can go through the freezer.

The same process is used for vegetables, using either a syrup or a brine, and using a brine solution for fish or shrimp.

In addition to the quickness of freezing, advantages of the invention, according to the developers, are the prevention of oxidation and dehydration during storage period (a film of fluid stays on the frozen product to solidify in storage); the product can be packed loose, and thus is easy to defrost.

Freezing cost is from 15 to 40 cents a hundred pounds, the amount depending on the product frozen. Refrigeration equipment of about 17 tons capacity is all that is necessary; the machine is compact (12 ft. long, 5 ft. high, and 1½ ft. wide); the machine has an automatic operation; because of the fast freeze there is no change in flavor, form, or color.

The machine weighs about 7,000 pounds and can be moved from place to place. Rollers are fitted onto the bottom of the machine when movement from one place to another is necessary. The floor area requirement of the machine is 74 ft., while the insulated area inside is 165 square, much less than most freezers.

Before high labor and material costs set in, the developers expressed the belief that the "flash" freezer could be built for as little as $2,500. Inflated costs, however, had shot the manufacturing cost upward, Dean Woolrich reported.

The McEvoy company leases the machines rather than sells them, Dean Woolrich said.

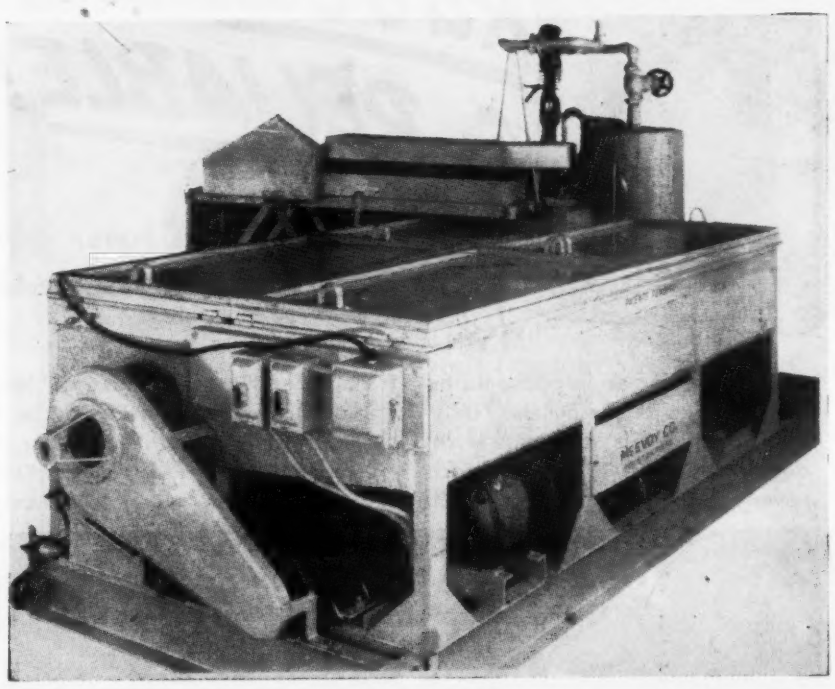
Before the manufacture of the machines began, tests were conducted with a number of types of fruits and vegetables, and according to the inventors, the tests showed that a Jonathan apple, cut in eighths, could be frozen in 5 to 7 minutes; a peeled banana in 10 to 12 minutes; Haupt blackberry, 5 to 6 minutes; a sixteenth of a Heart of Gold cantaloupe, 10 to 12 minutes; Celestrial fig, 9 to 12 minutes; Marsh grapefruit segments, 5 to 7 minutes; Elberta peaches in eighths, 7 to 9 minutes; Bartlett pear in quarters, 8 to 10 minutes; pineapple in one half an inch slices, 4 to 5 minutes; strawberries, 7 to 9 minutes; asparagus, 4 to 7 minutes; lima beans, 1½ minutes; snap beans, 3 to 4 minutes; carrots, 5 to 9 minutes; okra, 4 to 7 minutes; and black-eye peas, 1½ minutes.

The inventors reported that the machine had not yet been made adaptable to such leafy vegetables as spinach, mustard greens, etc.

Capacity of the machine is from 600 to 900 pounds of food an hour, the figure depending on the type of product being used, the higher figure being for small vegetables.

Dean Woolrich said the first machine to be built at McEvoy was kept in Texas, near the manufacturing firm, in order that an eye could be kept on it. One of the two machines now on the McEvoy floor, ready to be shipped out, probably will be sent to the West Coast, he said.

Operating Model of Freezer



Six years in development by a group of professors at University of Texas, this 7,000 lb. movable freezer is 12 ft. x 5 ft. x 4½ ft. in size.

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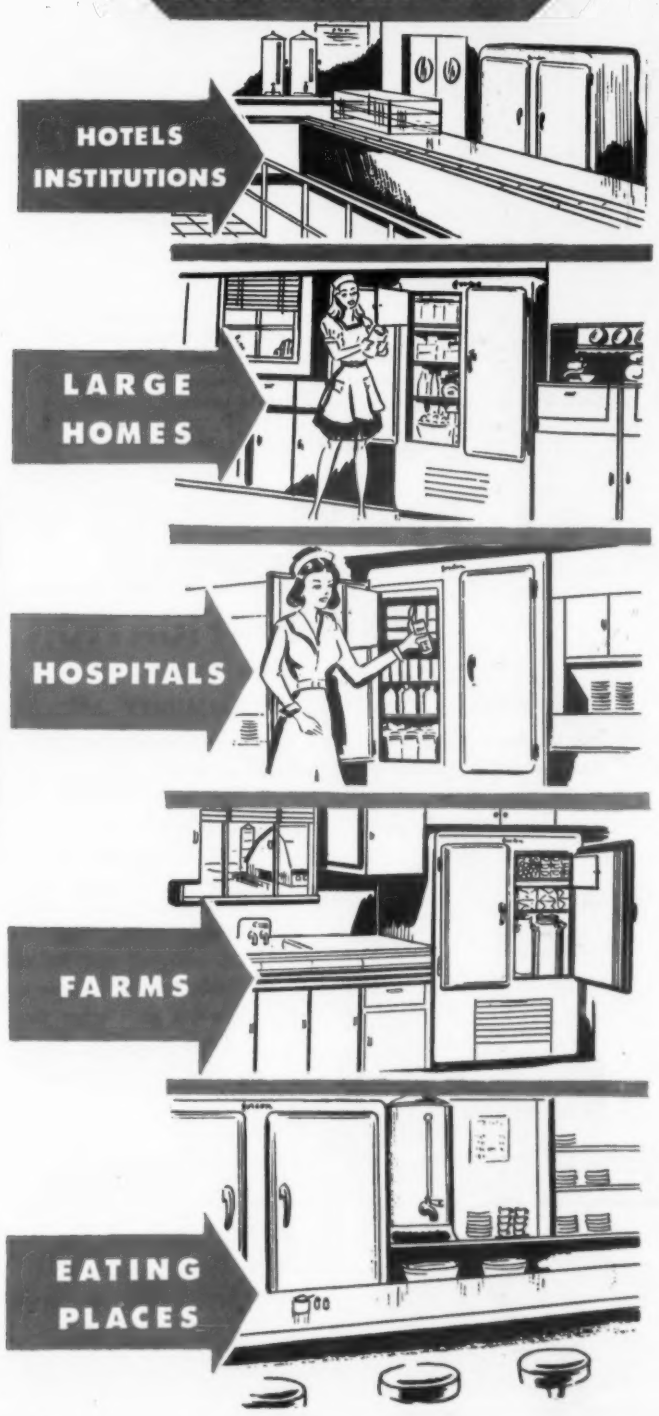

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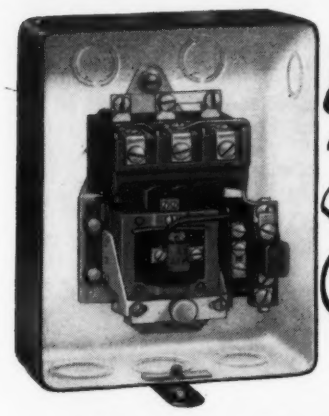

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Boggs Is Chief Engineer For Avery Engineering

CLEVELAND — Appointment of Dennis Boggs as chief engineer for Avery Engineering Co. has been announced by Lester T. Avery, president.

Dennis Boggs

Mr. Boggs, who joined the Avery organization in 1942, has a degree in engineering from the University of Kentucky and is a member of the American Society of Refrigeration Engineers and the American Society of Heating and Ventilating Engineers.

Minneapolis-Honeywell Forms Two New Divisions

MINNEAPOLIS—Formation of two new divisions of the Minneapolis-Honeywell Regulator Co. and the appointment of men to head them have been announced by John H. Haines, vice president.

The newly formed hotel division will be headed by Robert M. Balch, Jr., who was associated with the Airtemp division of Chrysler Corp. before joining Honeywell in 1936. Purpose of this division is to better market a number of recently developed controls particularly adapted to the hotel industry.

B. C. Benson will supervise the new hospital division, organized to promote sales of controls developed recently for this field.

Drugstore Air Cooling System Adjusts Itself To Offset 'Heat Pool' Condition

ST. LOUIS — Extra capacity for comfort cooling when 300 people are crowded into the store was built into the 60-ton air conditioning system in the 8th and Washington St. Katz Super Drugstore.

This is the first major-tonnage air conditioning system to be installed in St. Louis since Pearl Harbor, according to Albert Diamond, Katz manager.

Because the store is located on St. Louis' busiest downtown corner and caters to tremendous crowds of shoppers, as well as containing the largest food service department in any midwestern drugstore, air conditioning had to be of unusually large capacity. Therefore, although the building is only two floors with a total of 11,000 sq. ft. of floor space, 60 tons of air conditioning are supplied.

The Eichler Co., 2125 Locust St., St. Louis, has met the problem of surging heat loads and large congestion of customers by a street-line ammonia-refrigeration unit, utilizing commercial ammonia refrigeration service. The system begins with a shell-and-tube water chilling tank in the basement of the store, of 175 gallons capacity. Water is chilled to 42°, and pumped at the rate of 175 gallons per minute to two floor plenum stations, one on each floor of the store. Each plenum chamber is connected to two large 3 x 1 ft. ducts, one on each side of the store. That on the first floor, passing over the soda fountain, steam tables, and short order kitchen, has four extra outlets to compensate for high heat loads at this point.

Capacity for the first floor is 12,000 c.f.m. and in the basement 4,400 c.f.m. Each blower unit contains two coils, one for low-pressure steam heating in the winter and the other for summer cooling. Powers thermostat controls are installed on each unit, in combination with by-passed dampers for an entirely automatic control of the in-store temperature. The dampers make it possible to mix the circulated store air and fresh outside air in any quantity up to 50-50. During the hot summer months, only 25% fresh outside air will be admitted, although this may be varied at will.

Thermostatic control adjustment is such that a normal temperature of 80° with 50% relative humidity will be maintained when the store is not crowded. During food preparation hours, or when the store is jammed with customers, the thermostats automatically reset themselves for a 77° temperature, and the resulting extra capacity offsets any chance of discomfort or accumulation of "heat pools" throughout the drugstore.

Either side of the air conditioning system, or the entire system can be shut off or started up by means of two shut-off, and two start-up valves located in the basement.

The Katz management, currently operating four super drugstores in the St. Louis area, chose the ammonia-powered refrigeration system as most practical from a number of standpoints, according to Mr. Diamond. Among these were the lack of sufficient equipment for self-contained refrigeration, the convenience of the commercial ammonia line which already ran through the basement of the building, and the fact that 60-tons capacity could be concentrated in a very small area, important to a store crowded for every foot of space as is this new super drugstore.

HERE'S Double Value FOR DELIVERY NOW!

ROGERS SC-1000
10 TON CAPACITY • SELF-CONTAINED AIR CONDITIONING UNIT
A heavy duty unit for medium sized installations, offering the most in comfort, convenience and economy. Note that narrow width of 30 inches permits free passage through standard doorways. Easily installed.
DELIVERED CHARGED WITH FREON 12 REFRIGERANT.

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SELF-CONTAINED AIR CONDITIONING UNITS

Every day, more and more ROGERS Conditioners are proving their superiority in domestic, commercial and industrial installations. ROGERS Conditioners are completely self-contained and self-operating. Quiet, vibrationless, economical operation and trouble-free, 24 hour a day service, make these conditioners the outstanding value in the air conditioning field. Delivered factory perfect charged with FREON 12 refrigerant.

SIMPLE INSTALLATION 1-2-3

ROGERS Conditioners require a minimum of floor space, are easily moved into location without removing door frames or disassembling the conditioner. Installation is quickly performed and inexpensive.

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EASILY TRANSFORMED TO A YEAR ROUND CONDITIONER BY ADDING HEATING COIL AND HUMIDIFIER

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Automatic Controls
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Year Round Conditioning
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Heavy Duty Condensers
Modern Blower Design
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Large Area Filter Section

ROGERS SYSTEM OF CHEMICAL DEHUMIDIFICATION
Independent control of temperature and humidity.
Dehumidification without refrigeration.
Eliminates high electrical costs and large compressors.
TEG is non-toxic, non-inflammable. Easily pumped.
Requires low-cost standard valves and piping.
Sterilizes room air.

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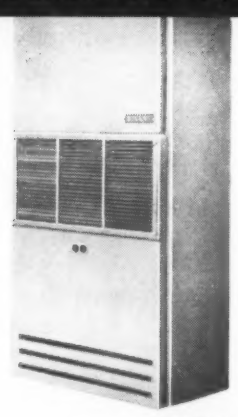
manufactured in
3-5-7½-10-15-20- and 25 ton capacity units



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5 TON CAPACITY SELF-CONTAINED AIR CONDITIONING UNIT
Unexcelled for use in homes, stores and offices. All automatic controls, internal wiring and charge of Freon 12 refrigerant included and shipped from factory.

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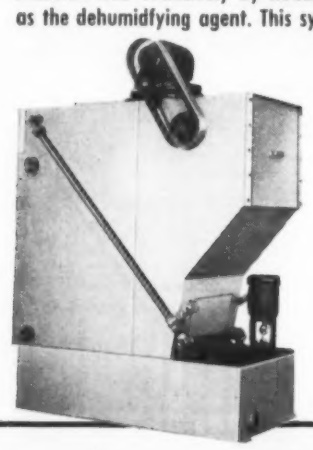
WITH TEG

INDEPENDENT CONTROL OF HUMIDITY AND TEMPERATURE

This efficient system is a modern development for the control of humidity in air. Manufactured exclusively by ROGERS, the equipment utilizes triethelyne glycol (TEG) as the dehumidfying agent. This system offers the most effective means of controlling moisture in the air both for comfort and industrial processing. Another great advantage of triethelyne glycol is its power to destroy air-borne bacteria. Thus in the ROGERS system, moisture content of the air is controlled and the air itself sterilized. Easily installed; simple equipment with no moving parts other than blowers and a simple pump.



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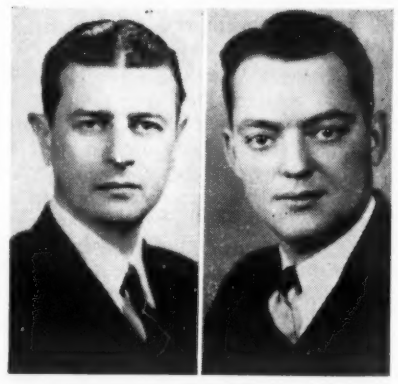
New Representatives Are Named by Electric Power



F. J. Marshall H. F. Krantz

* * *

PHILADELPHIA—Appointment of three new regional representatives for Elpeco products has been announced here by C. R. Logan, sales director of the Electric Power Equipment Corp.

H. F. Krantz will handle the complete line of Elpeco Green Dragon commercial refrigeration and air conditioning equipment in the north central area, including the states of Illinois, Missouri, Iowa, Wisconsin, Minnesota, North and South Dakota, Nebraska, Kansas, Colorado, Wyoming, and eastern Montana, he said.

Mr. Krantz will temporarily work out of Aurora, Ill., where he had been employed before entering service by Lyon Metal Products, Inc. During the war, Mr. Krantz served as a Lieutenant, junior grade, on the submarine U.S.S. Lapon in the southwest Pacific, according to Mr. Logan.

Alvin Dattle, formerly procurement manager of the refrigeration division in Elpeco's office here, has been assigned the duty of developing the midwest territory comprising western Pennsylvania, Ohio, Indiana, Michigan, West Virginia, Kentucky, and Tennessee, Mr. Logan said. He will operate temporarily from the Philadelphia office.

Frank J. Marshall, who has had 20 years experience in the refrigeration field, will cover the middle Atlantic territory of eastern Pennsylvania, central and southern New Jersey, Maryland, Delaware, and Virginia. He will work from the Philadelphia headquarters.

Hotter In the Winter

Research Proves Sun's Rays Will Heat a 'Solar House'

LAFAYETTE, Ind. — A Purdue university scientist has announced that research conducted over a two-year period here proved conclusively that the sun's rays can be effectively captured to partially heat "solar houses" in most cities of the United States.

He is Dr. F. W. Hutchinson, professor of mechanical engineering at Purdue, who carried on his study in two test houses—one solar and one orthodox—built in 1945 on the university campus. The experiments, now nearing completion, were financed by the Libbey-Owens-Ford Glass Co.

The test houses, identical in size and design except for the larger windows on the south wall of the solar structure, are one-story cottages both of which are glazed with a double-paned insulating glass developed by the glass company. It was designed to make larger windows practical.

The experiments, Dr. Hutchinson said, showed a "substantial reduction in required degree-hours of heating for a solar over an orthodox house." He added, however, that complete data is not yet available on comparative heating costs for the two houses.

Ideal Combination With Heat Pump?

Would "solar houses" plus a reverse-cycle (heat pump) air conditioning system provide the ideal system for home heating and air conditioning in some parts of the country?

On the basis of this report of the heating effect that can be obtained through solar house construction, it is apparent that the amount of energy input for heating needed could be greatly reduced.

Since the relative cost of heating with a reverse-cycle system has been something of a major problem, there would seem to be a distinct possibility that the combination of the solar house and the heat pump would provide the ideal system in certain areas.

Citing an example of the practical results attained thus far, Dr. Hutchinson pointed out that a structure in New York City having 570 sq. ft. of insulated exterior wall and 100 sq. ft. of double glass in the south wall would theoretically not require any seasonal heat input—other than from the sun—for comfort. With a greater proportion of glass, the house would be too warm; with a lesser proportion, some heating would be necessary.

"Contrary to popular opinion," he said, "the quantity of solar energy received through an unshaded south-exposure window on an average sunny day in winter is substantially more than that received through the same window on an average sunny day in summer.

"Analysis of windows in south walls," he continued, "shows that the available solar gain for double windows in most cities of the United States is more than sufficient to offset the excess transmission losses through the glass." He explained that such a window simply allows more heat to enter the house than to leave it.

Dr. Hutchinson's study, he said, was fundamentally concerned with the quantity of solar energy that can be introduced into a house through south windows and the extent to which this available energy can be captured, controlled, and utilized.

He has provided, as a result, design data for solar house construction in 48 cities of the country. Such data includes the ratio of actual sunshine hours from October to May to the maximum possible sunshine hours, the air temperatures for these cities, and the capacity of heating plant needed.

He has also computed the net gain of solar energy resulting from the use of unit glass areas and stated that:

"In New York, 1 sq. ft. of double glass window will, in effect, provide sufficient thermal gain to compensate for the loss through 2.88 sq. ft. of average uninsulated wall, or 5.7 sq. ft. of average insulated wall."

He noted that the rapid rise of solar house temperature during periods of sunshine is evident as is the more rapid drop in air temperature of the solar over the orthodox house.

The greater solar energy available in winter for home heating, he said, is due to a combination of causes. For example, although there are more hours of possible sunshine in summer, there are more hours of possible sunshine on a south-exposed window in winter.

Other factors leading to this conclusion were: the intensity of the sun's rays in winter is equal to the rays in summer; the energy received by a window from the sun is greater in winter than in summer because the sun is closer to the horizon; the reception of indirect radiation—called sky radiation—is much greater in winter than in summer; and the amount of energy transmitted to an interior through a window in winter is greater than in summer because the rays are more nearly perpendicular to the window.

In addition, Dr. Hutchinson said, most solar windows are shaded by a roof over-hang which excludes all solar energy on June 21 and allows all sunshine to enter on Dec. 21. Approximately 75% of the window can be shaded all summer.

In a window with a solar-designed roof over it, the reception of solar heat during the winter day will be almost three times as great as during a comparable summer day.

For the 1946-47 heating season, not yet over, the two test houses are being electrically heated to a fixed inside temperature of 70° F. Results of these tests, he said, are expected to show the difference in energy required to heat them over a full winter season.

Miller Heads Frigidaire Oklahoma City Branch

H. J. Miller

OKLAHOMA CITY—Harry J. Miller, commercial sales manager of the Fort Worth, Tex., branch of Frigidaire Sales Corp., has been promoted to manager of the Oklahoma City branch, according to W. G. Jennings, southwestern regional manager. Mr. Miller succeeds D. T. Hayward, who is resigning.

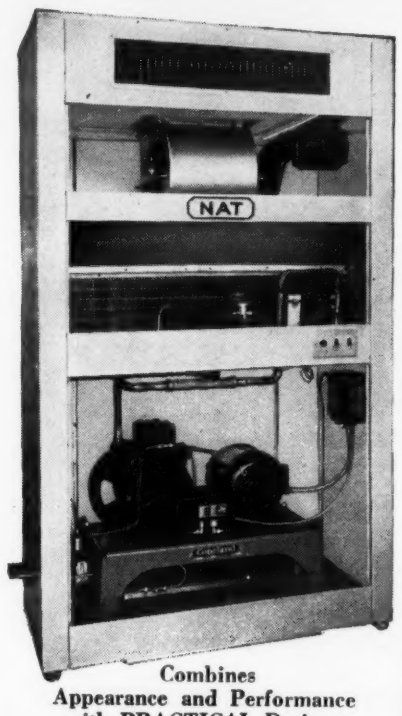
The new branch manager has been associated with Frigidaire's Fort Worth distributing organization for 18 years as service manager, manager of national user sales and, since 1941, as their commercial sales manager.

Peltz Named To Philco Executive Staff

PHILADELPHIA—Appointment of William J. Peltz to the executive staff of Philco Corp. to carry out special assignments in the various divisions of the corporation has been announced by William Balderston, executive vice president.

Mr. Peltz joined Philco in 1925 and has had a wide experience in both the radio and refrigeration phases of the firm's business. For the past 18 months he had been production manager of the Refrigerator Division.

The NAT Corporation of Kansas City



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The NAT Unit comes in 3 sizes: 3.0, 4.2 and 5.4 Tons

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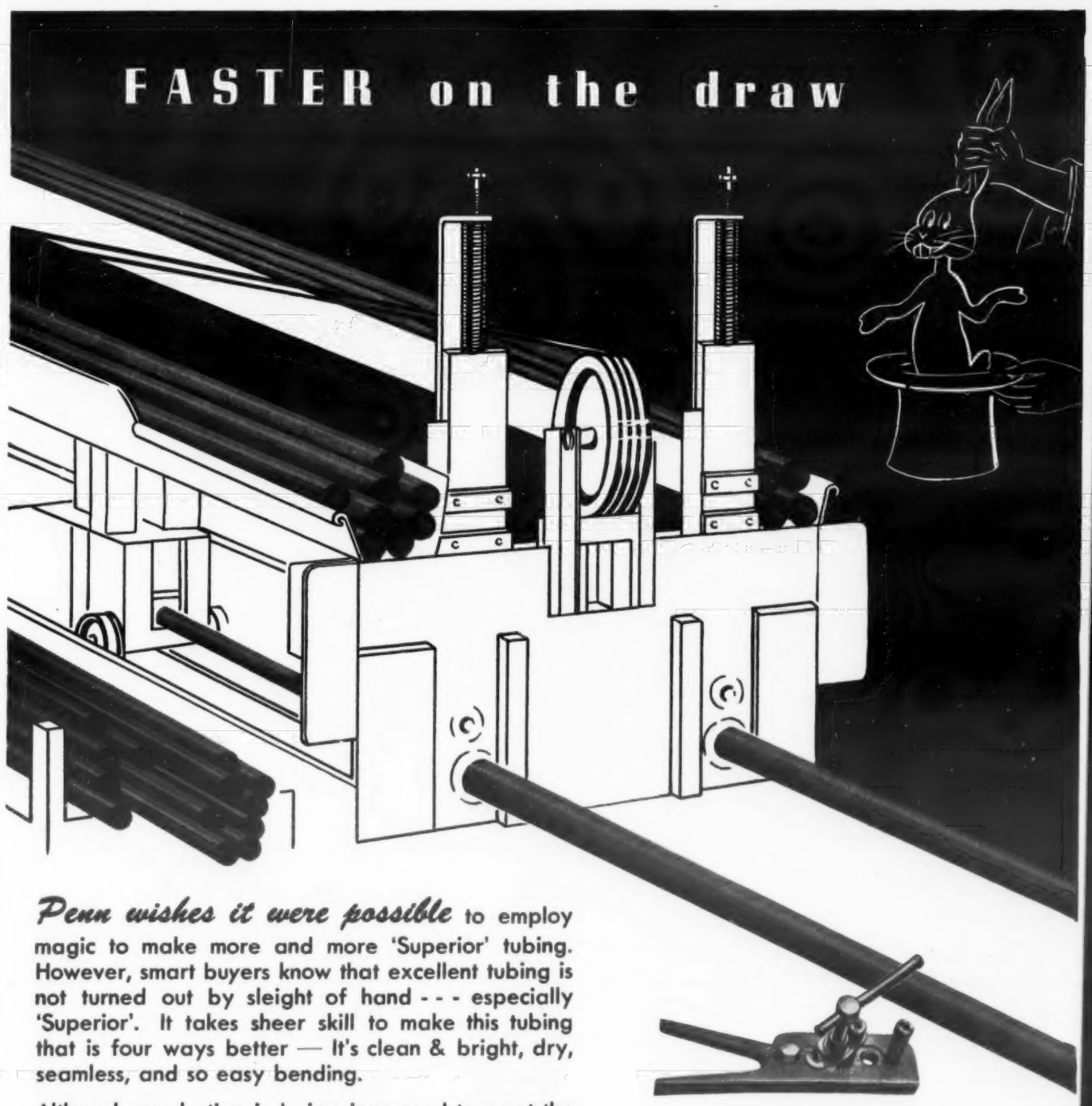

Penn wishes it were possible to employ magic to make more and more 'Superior' tubing. However, smart buyers know that excellent tubing is not turned out by sleight of hand - - - especially 'Superior'. It takes sheer skill to make this tubing that is four ways better — It's clean & bright, dry, seamless, and so easy bending.

Although production is being increased to meet the mounting demand in Refrigeration, Automotive and Bottled Gas industries, Penn still wishes they could wave a magic wand and furnish all with 'Superior' tubing.

BE FASTER ON THE DRAW and plan now to use 'Superior' for your tubing needs. Write today for full information and colorful literature.

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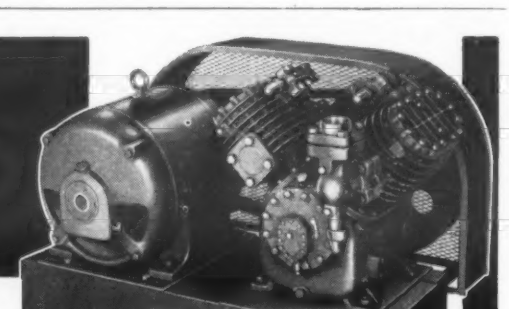

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(Positive rotary pumps force oil to shaft seal, bearings, and all moving parts.)

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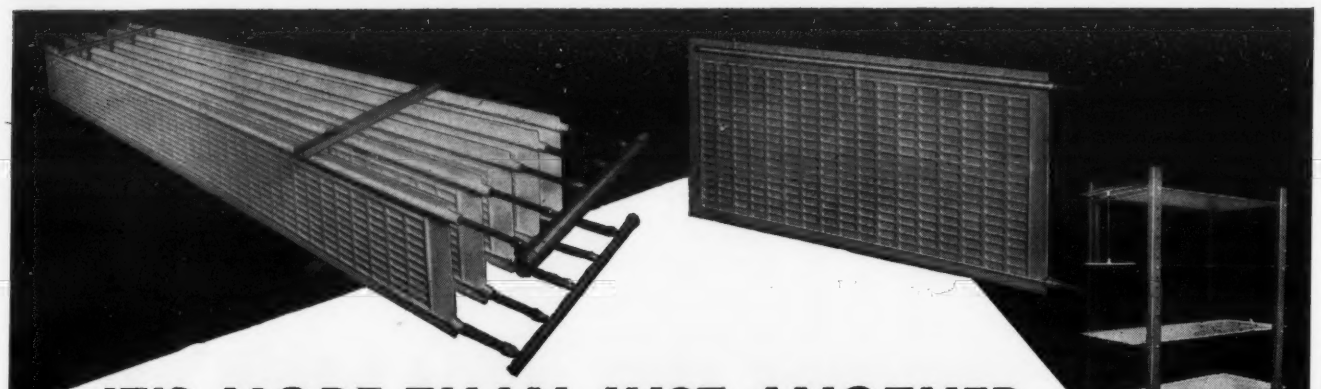

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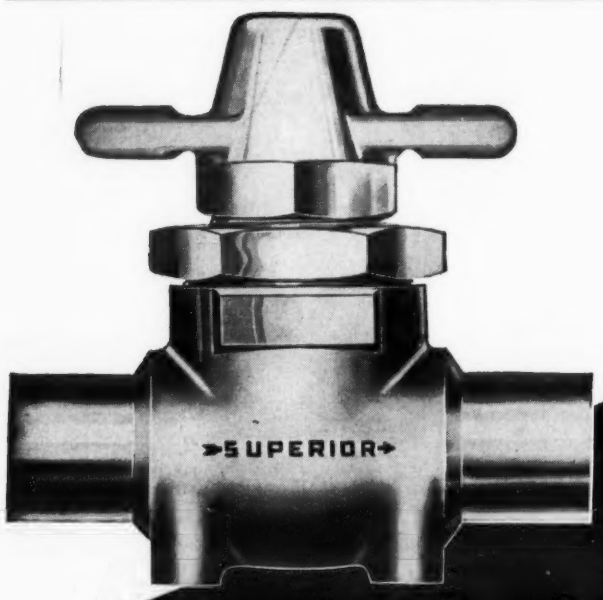

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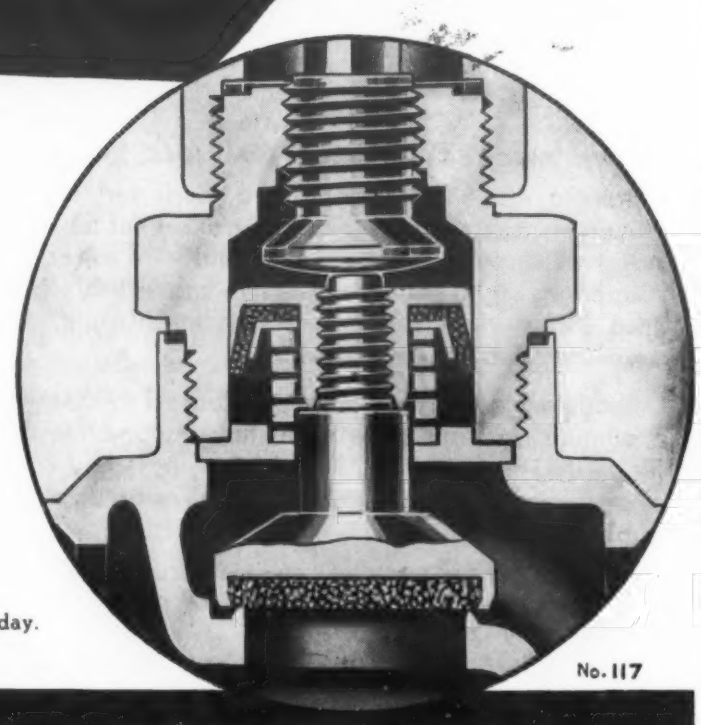

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- Wrench flats for easy removal of internal assembly.
- Spring assures positive opening under pressure.
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Willis Refrigerator Co. Develops Special Processes & Tools To Recondition Hermetics

Editor's Note: This is the first of a two-part article about the special processes and fixtures developed by the Willis Refrigerator Co. of Long Beach, Calif., through nearly 10 years of experience in reconditioning hermetically sealed refrigerating units.

By C. Dale Mericle

LONG BEACH, Calif.—In the past nine years, more than 12,000 hermetic machines of all types and makes have been completely reconditioned by the Willis Refrigerator Co. here.

"Hermetics are our only business, and we've handled machines from all over the country, and quite a number from foreign countries," declares L. K. Willis, head of the firm.

Coldspots, Tecumseh, General Electric, Westinghouse, in fact, any make can be repaired in his shop, he says. The 12,000 figure, he adds, probably includes 6,000 Coldspot units. These figures should be accurate, for Mr. Willis keeps a card file on every unit that goes through the shop.

Hereabouts Mr. Willis has the reputation for being a top-flight refrigeration mechanic and machine shop man. He also knows motors, and does a complete motor rewinding job for these hermetics, too.

To make a success of his business he has developed a number of special processes, machines, and fixtures, all of which add up to a virtual production-line operation. He has his own methods for paint removal, dehydrating, charging, grinding and finishing parts, cutting open hermetic shells, re-welding them, and other operations.

Some of these operations are surprisingly easy and simple—the way Mr. Willis does them. His dehydrating process, for example, is so simple and positive that he regularly washes down units, inside and out, with plain tap water.

Perhaps the best way to illustrate and describe some of the methods used by Mr. Willis is to give the step-by-step procedure he follows in rebuilding a hermetic unit—the G-E Monitor Top, for example.

"The first thing we do," he explains, "is to pump down the unit and reclaim the gas. The gas is pumped to a tank outside the rear of the building where it is evaporated over again. The oil and dirt settle in the bottom of the tank.

"We probably reclaim about a ton of refrigerant a year, which isn't enough to pay the cost of this method, but reclaiming gas is not the chief objective. Purging the unit takes too long, and getting rid of the gas, especially if it's sulphur dioxide, is quite a problem."

Compressor used in the pump-down is a ported O'Keefe & Merritt twin compressor. Because this uses ports instead of valves, there is no trouble at any time with sticking valves which might result due to moisture in the old machines if a conventional compressor were used, he points out.

Incidentally, no flare connections are used in the shop. There are about 50 industrial snap-on type connections throughout the shop, which, says Mr. Willis, save much time in connecting and disconnecting units for charging, pump-down, cleaning, testing, etc.

After the hermetic unit has been pumped free of refrigerant, the second step is to separate the evaporator section from the hermetic unit. (This is the G-E Monitor Top he's discussing.) Some models are simply bolted together, so the evaporator is merely unbolted. If welded, the evaporator is pried loose.

Next, says Mr. Willis, all the lines are welded shut.

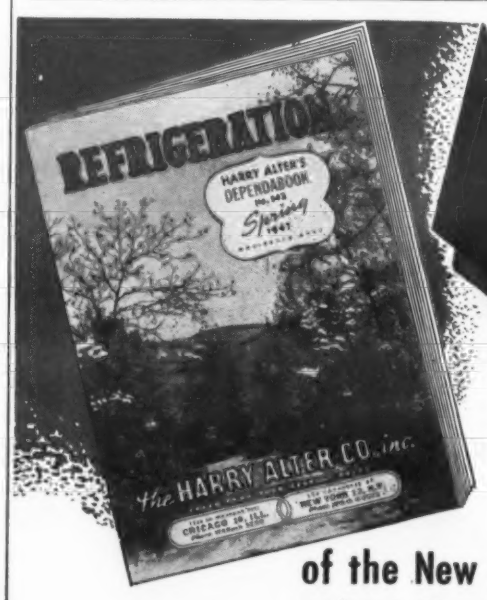
The fourth step is to place the unit in a hot soaking tank to remove paint, an operation that requires about six hours. (These three operations—separating evaporator from unit, welded lines, and paint removal,

(Continued on next page)

* * *

Mr. Willis and a Shop Fixture Which He Developed

L. K. Willis adjusts the special internal grinder he designed and made for repairing Coldspot hermetics.



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Steps In Reconditioning Hermetic Units Outlined by California Rebuilding Firm

(Continued from preceding page)

are performed in back of the shop proper.)

A galvanized metal tank which is roughly a cubic yard in size serves as the paint removal tank. In this tank is sufficient paint-removing solvent to cover the units. The solution is the "hot tank stripper" as produced by the Cee-Bee Chemical Co. of Los Angeles. A gas flame keeps this solution at 180°.

Mr. Willis claims this solution is the best he has found for this job. It is non-injurious to the skin, and does not damage the equipment or tank, but it does remove the paint quickly.

Fifth step is to remove the unit from the tank after the six-hour paint removal bath and hose it down with hot or cold water.

Next the unit is opened. Some early G-E models were bolted, so opening the shell is no problem. The welded ones are cut open with a special saw developed by Mr. Willis, which, he claims, will do the job in five minutes, as compared with 10 or 15 minutes on a lathe. It has other advantages, too.

MAKING THE CUTTING MACHINE

In a sense, this cutting machine is a home-made lathe. Frame-work is 1-in. angle-iron. The unit is lowered in place with a movable hand crane and fixed between two centers so it can be revolved by hand. Then the cutting wheel is fed into the shell along the original electric weld by means of a cross-slide such as used on a conventional lathe.

The cut-off wheel is ⅛ in. thick by 7 in. in diameter and is made by the Carborundum Co. It is a standard 30K-6W-52B Aloxite Resinoid wheel. It is powered by a ½-hp. Dumore grinder.

Besides the advantages of speed over a conventional lathe, this cutting machine takes a 36-in. diameter unit. A lathe this large would be quite expensive. In addition, cutting through an electric weld would ruin a lathe, says Mr. Willis, because the welds are very uneven. This uneveness has no effect on the grinding wheel.

Seventh step is to remove the motor and the compressor from the shell of the unit.

COMPRESSOR DISASSEMBLY

Eighth step is to disassemble the compressor.

If the compressor should be wet and stuck it goes in the hot, paint-removal tank for six hours or so and then is hosed down with hot water before it is taken apart.

It may be necessary here to rub off the loose dirt and sludge on the outside of the compressor with a wire wheel or steel wool following the hot bath, and after this final rubbing the compressor is hosed down again with water which is hot enough to let the compressor dry off of its own accord.

As the compressor is disassembled all the parts are numbered so that the same parts can be matched in the eventual reassembly operation.

VALVE PLATE GRINDING

Then it will probably be necessary to grind the valve plate and the cylinder ports. The piston of these G-E units, says Mr. Willis, never shows any signs of wear. For the grinding operation, Mr. Willis has developed his own method.

A spud is set up in the lathe and ground true. It is impossible to do this job with a surface grinder, because that won't take care of inaccuracies in the job, he explains. A tool-post grinder in the lathe is employed instead.

When the spud has been ground true, the valve plate is bolted on the spud with the valve face against the spud. It is held in place by bolt through the spindle of the lathe. Then a light grind is taken on the back of the plate, just enough to true it up.

The reason for first bolting the valve plate face down on the spud and trueing the back, says Mr. Willis, is that the outer rim on the face of the valve plate receives no wear and thus is still true with the bearing. Grinding the back of the plate first thus assures that the bearing will still be true when the plate is turned around to grind the face.

After the back is trued, the plate is turned around on the spud and the face ground true. In this operation Mr. Willis employs a C21C Carborundum 5 in. by ½ in. wheel for dry grinding. In grinding the valve plate, the wheel is fed from the bearing out towards the operator, taking light cuts until the surface is true.

Next step presents a difficult problem, he says. This is to grind the valve face on the cylinder block of the G-E unit true with the trunnions of the block. It is necessary to have a true indexing point to start from.

For this Mr. Willis has developed a simple, U-shaped fixture which is fastened to the spud and holds the cylinder block. The block is rotated by hand as the grinder is brought up. This trues up the back of the block in relation to the trunnions.

Now the cylinder block is mounted directly in the spud with its back to the spud to grind the "port" side. This should be ground by starting at the center and grinding away from the operator.

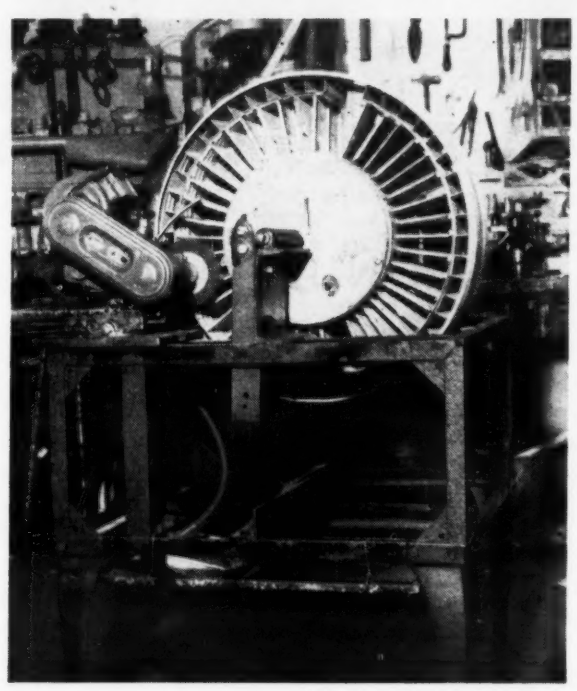
Because the valve plate was first ground from the center towards the operator, grinding the block from the center away from the operator overcomes the discrepancies that are found in any lathe, points out Mr. Willis.

Final grinding operation on the block is to mount it in a fixture on the spud and grind the discharge valve seat.

This completes the reworking of the compressor itself, but in the meantime the electric motor is also being reworked.

(Second and concluding part of this article on processes and special tools for reconditioning hermetic refrigerating units will be published in the next issue of Air Conditioning & Refrigeration News.)

'Cutting Wheel' Fixture Used by Willis Co.



This is the special cutting machine fixture which Willis developed for opening hermetic shells. Note the cutting wheel at the left. This is a 30-K-6W-52B aloxite resinoid (Carborundum Co.) wheel, ⅛ in. by 7 in. diameter.

Zickgraf Will Represent Gray Co. In Ft. Wayne

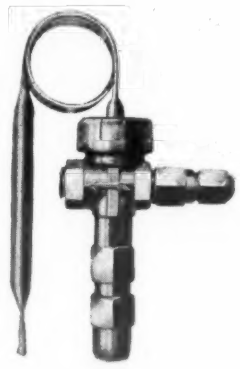
FORT WAYNE, Ind. — Appointment of A. L. Zickgraf as dealer contact representative in Fort Wayne and surrounding counties has been announced by the A. B. Gray Co., distributor of Norge electrical appliances and Bendix radios.

Mr. Zickgraf entered the appliance field in 1920 and spent several years with the original Norge distributor in the Fort Wayne district.

MAYSON

Adjustable Thermostatic Expansion Valves

Model "L"
Capacity ⅓ ton
4000 BTU per hr.



Outlet—¼" pipe tap
Inlet—¼" flared tube
Bulb—⅜" diam.
Capillary—30" long
Adjustment—from 0 to 30° super heat

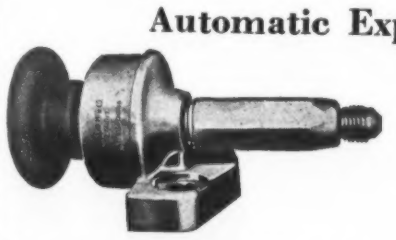
Refrigerant	Code Marking
Freon	LF
Methyl Chloride	LM
Sulphur Dioxide	LS

Model "R"
Capacity 1 ton
12000 BTU per hr.

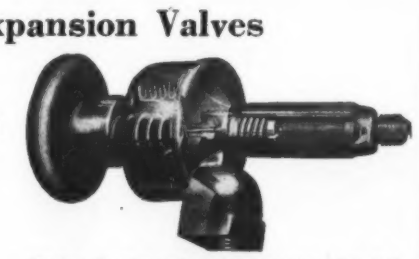
Outlet—⅜" pipe tap
Inlet—Combination flare for either ⅜" or ¼" tubing
Bulb—½" diam.
Capillary—60" long
Adjustment—from 0 to 30° super heat

Refrigerant	Code Marking
Freon	RF
Methyl Chloride	RM
Sulphur Dioxide	RS

Automatic Expansion Valves



Model K—for all refrigerants and S.L. Pressures under 14 lbs. Model KF—for S.L. pressures over 14 lbs. Flange bolt centers 1⅝". 1¾" and 2" centers optional but supplied only when specified.



Model D for all refrigerants and S.L. Pressures under 14 lbs. Model DF—for S.L. Pressures over 14 lbs. ¼" Flared tube inlet—¼" pipe tap outlet. Other connections optional but supplied only when specified.

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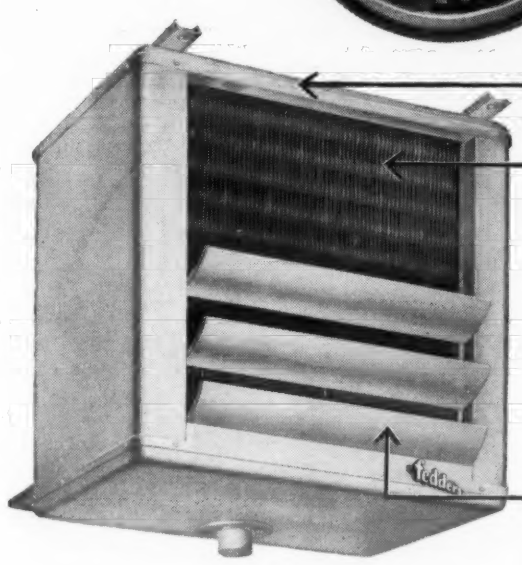

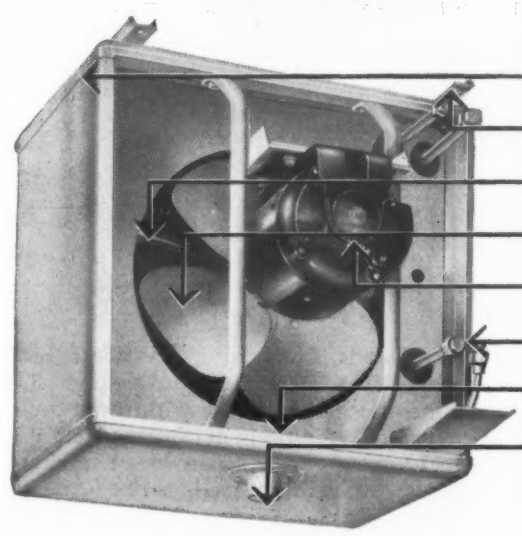

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HEAT-X

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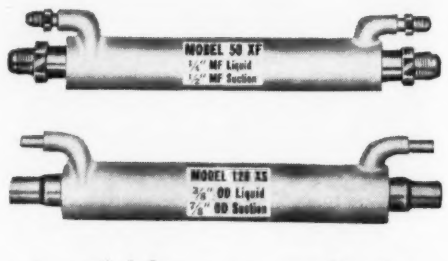

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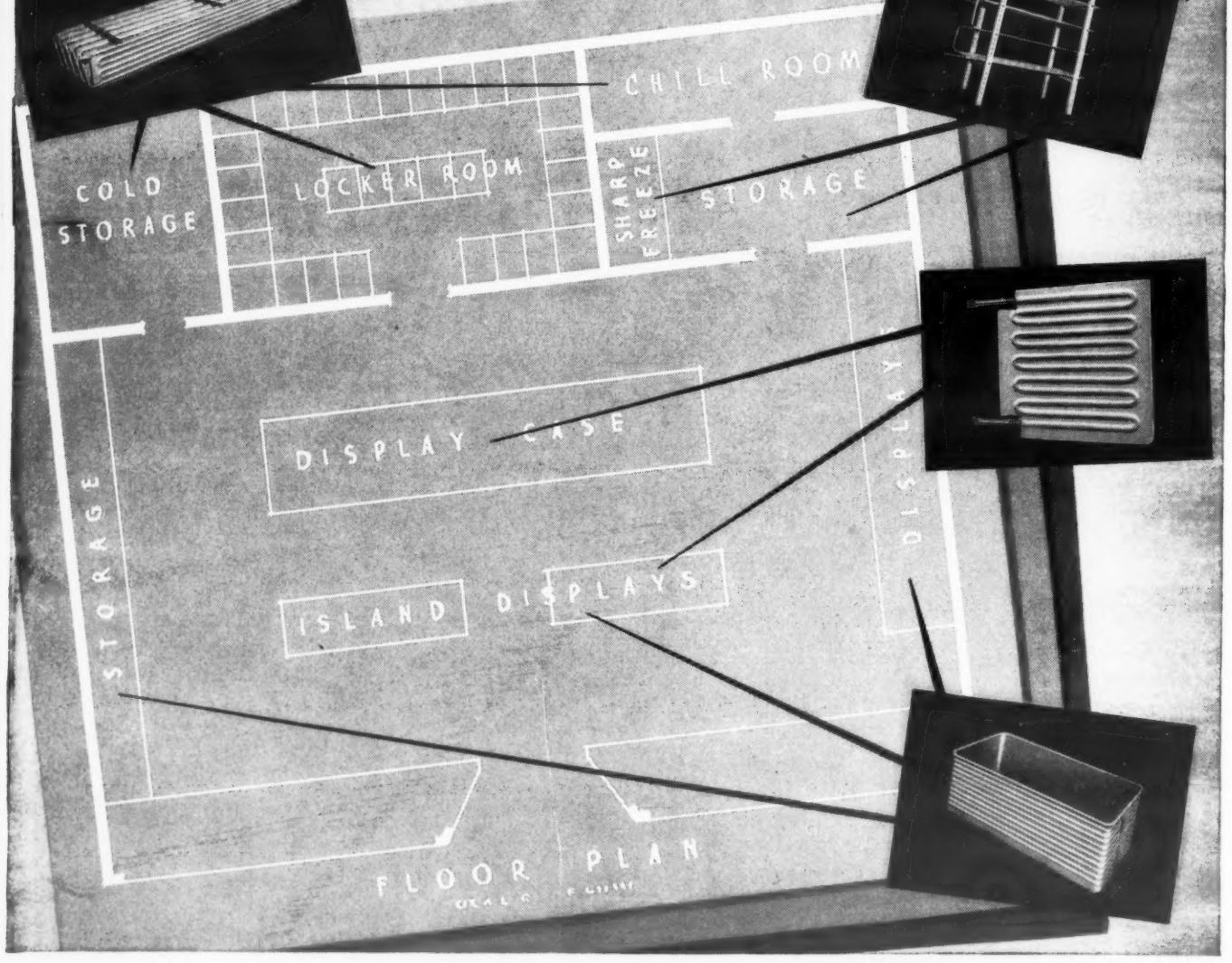

SPECIFY KOLD-HOLD FOR YOUR LOCKER PLANT PLANS

Kold-Hold equipment is designed for efficient, economical refrigeration. It is unequaled for locker plant applications. Constructed simply and rigidly, lightweight Kold-Hold Refrigeration Units have only one wall between the refrigerant and the contacting air. Tubes, pipes and unnecessary refrigeration joints are eliminated. The refrigerant flows through the stamped steel serpentine passages and contacts a maximum surface area creating an exceptionally high rate of heat acceptance and equally fast temperature pull down.

Easy to install and maintain, Kold-Hold Evaporator Type Banks, Plate Stands, Conversion Plates and Liners fit into every stage of locker plant processing. They hold constant, controlled temperature within the desired ranges for such locker operations as thorough chilling, fast action sharp freezing and constant low temperature storage. Kold-Hold refrigeration enables the faster processing of more perishables . . . maintaining their fresh, wholesome flavor and natural color indefinitely.

Write for complete data on Kold-Hold Locker Plant refrigeration. Ask for a free copy of the new Kold Hold Catalog showing the latest equipment in this line

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Servicing Truck Refrigeration Units

Editor's Note: Functions of the heat exchanger-accumulator in a truck plate system for "Freon-12" or methyl chloride are outlined in this article, along with suggestions for starting up a new system. The series was prepared with the assistance of Kold-Hold Mfg. Co., of Lansing, Mich., producer of truck plates.

Instalment No. 35

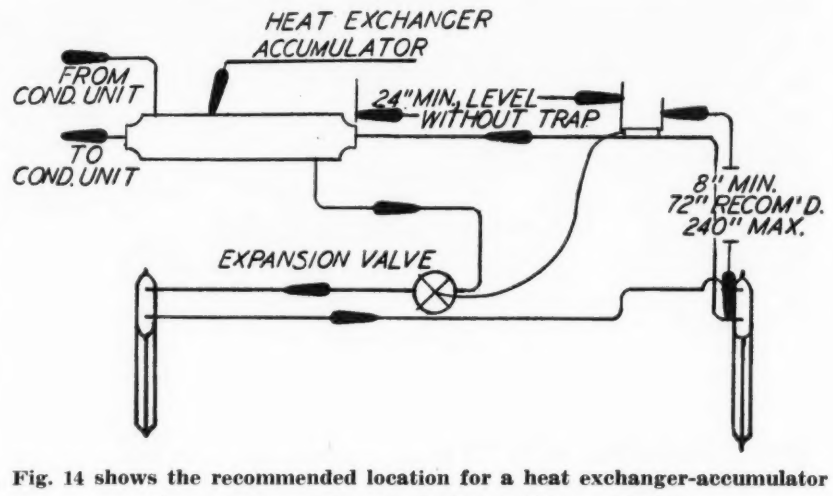

Fig. 14 shows the recommended location for a heat exchanger-accumulator in a truck system employing hold-over plates.

* * *

Heat Exchanger Serves As Accumulator

Heat exchanger-accumulators are recommended accessories for "Freon-12" or methyl chloride systems. The heat exchanger can increase the efficiency of the system by as much as 12%. It also provides considerable protection for the condensing unit by acting as an accumulator when the machine is first started after an extended shut-down period.

The first surge of liquid refrigerant from the system is caught and vaporized in the heat exchanger, thus preventing its return as liquid to the compressor crankcase where it could cause the oil to foam and pass through the compressor discharge valves, damaging them.

All models of heat exchangers recommended for installation in Kold-Hold truck plate systems are provided with an oil return to prevent trapping of oil within the accumulator.

If properly installed (vertical mounting is best) at least 3 ft. and preferably 8 ft. from the outlet of the last truck plate in a series and approximately 2 ft. from the location of the expansion valve bulb, the heat exchanger should prevent any frostback beyond its own location.

When the expansion valve is properly adjusted the suction line frostback will just show on the suction inlet side of the heat exchanger.

The heat exchanger must be large enough for the application. If two suction lines must be teed into the heat exchanger, the combined tee fitting must be equal to the combined capacity of the two suction lines to prevent throttling the flow of gas.

Starting a New System

Before starting up a new system, the motor bearings should be checked. Add oil to the bearings if necessary. Line fuses should be checked to see that they are not too heavy for motor protection. Overload thermo relays are usually provided on larger condensing units, and these should be checked to determine if they are proper for the amperage rating on the motor at the voltage to be used.

Compressor belt drives should be examined to see that they are in correct alignment and are at the proper tension.

Plant electrical lines should be checked to make sure they are large enough to carry the load without overheating or lowering the voltage to the condensing unit motor.

When starting the compressor connected to a truck system that is quite warm, it is necessary to throttle the suction service valve to hold the back pressure at 20 lbs. or lower. Immediately upon starting up the system check both high and low pressures to see that they are proper for the conditions. Compare gauge readings with the pressure-temperature chart for the refrigerant used.

Do not reduce the back pressure rapidly below 15 lbs. because this will cause the compressor to slug oil and damage the compressor valves.

After the system has been running for anytime from a few minutes to an hour, the suction service valves may be opened fully without causing excessive back pressure or motor overload. The condensing unit should be allowed to operate until the eutectic plates are frozen and the back pressure is lowered to the proper cut-out point shown in Table 3.

* * *

Table 3—Recommended Settings of Pressure Switch

Units Per Valve	1	2	3	4	5	6	Cut-In
Maximum Cut-Out Pressure for Low Temperature Work							
Ammonia	4.5 lb.	4 lb.	3.5 lb.	3 lb.	2 lb.	0 lb.	24 lb.
"Freon-12"	1 lb.	.5 lb.	0 lb.	1 lb.	2 in.	6 in.	22 lb.
Methyl Chloride	5 in.	6 in.	7 in.	8 in.	9 in.	12 in.	15 lb.
Maximum Cut-Out Pressure for Medium Temperature Work							
Ammonia	19 lbs.	18 lbs.	17 lbs.	16 lbs.	14 lbs.	12 lbs.	40 lbs.
"Freon-12"	11 lbs.	10 lbs.	9 lbs.	8 lbs.	7 lbs.	5 lbs.	25 lbs.
Methyl Chloride	6 lbs.	5 lbs.	4 lbs.	3 lbs.	2 lbs.	0 lbs.	17 lbs.
Maximum Cut-Out Pressure for High-Temperature Work							
Ammonia	30 lbs.	29 lbs.	28 lbs.	27 lbs.	25 lbs.	23 lbs.	45 lbs.
"Freon-12"	20 lbs.	19 lbs.	18 lbs.	17 lbs.	15 lbs.	13 lbs.	30 lbs.
Methyl Chloride	14 lbs.	13 lbs.	12 lbs.	10 lbs.	9 lbs.	7 lbs.	21 lbs.

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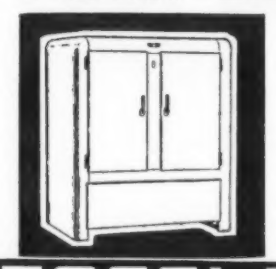

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Decatur, Ill. Department Store Puts In Full-Scale Frozen Foods Department

Self-Service Displays, Delivery Service Offered

DECATUR, Ill.—A frozen foods merchandising plan, based on the "Frostmaster Plan" for selling frozen foods through department stores, has been adopted by the Gebhart-Gushard department store here.

Gebhart-Gushard offers its customers telephone orders and refrigerated delivery service and employs a full-time "nutritionist," Mrs. E. E. Smith, to advise them on the uses of frozen foods.

The frozen foods department, whose opening was announced to the public last April 1, employs open, self-service type, refrigerated display cases.

In addition, Gebhart-Gushard has constructed in the basement a 20 x 18 ft. walk-in refrigerator able to hold a week's supply of frozen foods. Circulating blowers keep the temperature within the box below 0° F.

For delivery of the frozen foods, the store has contracted for a cab over engine model, mechanically refrigerated truck which will be able to handle a ton of frozen foods at a time, store officials said. The truck will be on a twice daily delivery schedule.

The nutritionist, Mrs. Smith, is stationed in the center of the frozen foods department. From her desk, she distributes booklets on frozen food menus, their preparation, etc., passes out a list of available foods which is changed daily, and conducts her meal planning service.

The meal planning service includes making up complete frozen meal menus, selecting the proper frozen foods, and supervising meal planning.

Along with the sale of frozen foods, the store is promoting Frostmaster frozen food lockers for home use. These units, which are said to accommodate a two weeks supply of frozen foods, are available to the customer either by outright purchase at $149.50, or on a rental basis.

The customer who rents is permitted to apply his rental payments towards the eventual purchase of the unit, store officials said. Rental rates vary according to the amount of purchasing the customer does, they added.

Store officials expect that this rental plan will do away with the "price wall" that, they say, keeps many people from large volume use of frozen foods.

To announce the opening of the frozen foods department, Gebhart-Gushard used a full page newspaper advertisement. The advertisement pictured the delivery truck, a Frostmaster unit, a self-service display unit, and the nutritionist, Mrs. Smith.

Copy invited the public to go through the store's frozen foods refrigerator and to consult with Mrs. Smith for meal planning service.

Instructions on how to buy frozen foods read:

"Just dial 439! Your order will be taken by our nutrition expert . . . she will advise you about balanced meals . . . suggest new delicacies. Your order will be given prompt attention and will be delivered to your door the next day.

"Gebhart-Gushard customers can buy frozen foods and have them charged to their accounts exactly like any other purchase."

New Commercial Sales Organization In Rife, Pa.

RIFE, Pa.—Organization of Croutharmel, Bonawitz, & Bolton, a sales and service firm handling air conditioning, refrigeration, and other equipment, has been announced here by L. W. Bolton, secretary-treasurer.

Other members of the firm are Leo P. Croutharmel, Lester L. Bonawitz, and Glenn L. Bolton.

Equipment handled by the firm includes refrigerating machines, freezers, refrigerators, air conditioning equipment, electric motors, electric stoves, diesel electric plants, stokers, electric water pumps, and builders' supplies.

L. W. Bolton declared that the firm also intends to take on lines of gas and electric stoves, household refrigerators, and washing machines.

Survey Shows Big Gain In Use of Frozen Foods

MILWAUKEE—The use of fresh frozen foods here has more than doubled since 1943, the 1947 consumer analysis of the greater Milwaukee market conducted by the *Milwaukee Journal* has revealed.

The survey showed that 46.7% of greater Milwaukee families now buy fresh frosted foods in packages as compared to 21.5% in 1943, and 44.8% in 1946.

Of the families surveyed who paid $50 or more per month rent, 56.5% were frozen foods purchasers, the analysis showed. In the $40 to $50 rent group, the figure was 48.7%; in the $30 to $40 rent group, 40.5%; and in the under $30 rent group, 32%.

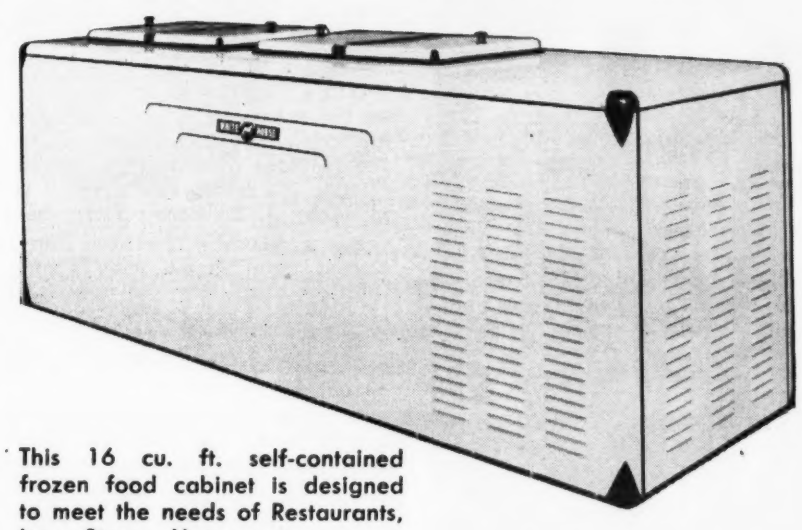
Of all the purchasers of frozen foods, 85.4% bought frozen vegetables, 63.7% bought berries, 41.9% bought fruits; 10.2% bought fish and poultry; and 3% bought meat.

There were 37 frozen food brands in use in the early part of this year, according to the survey. It also found that 34.3% of the grocery stores contained frozen food cabinets.

Farrell Sole Owner Of California Outlet

NEWPORT BEACH, Calif. — Following the dissolution of his partnership with Alden L. Doesburg on April 1, Basil M. Farrell took over the sole operation of the Newport Electric Appliance Co., general electrical sales and service business here, it was announced recently.

WHITE HORSE
FREEZING CABINETS



This 16 cu. ft. self-contained frozen food cabinet is designed to meet the needs of Restaurants, Inns, Stores, Homes, etc.

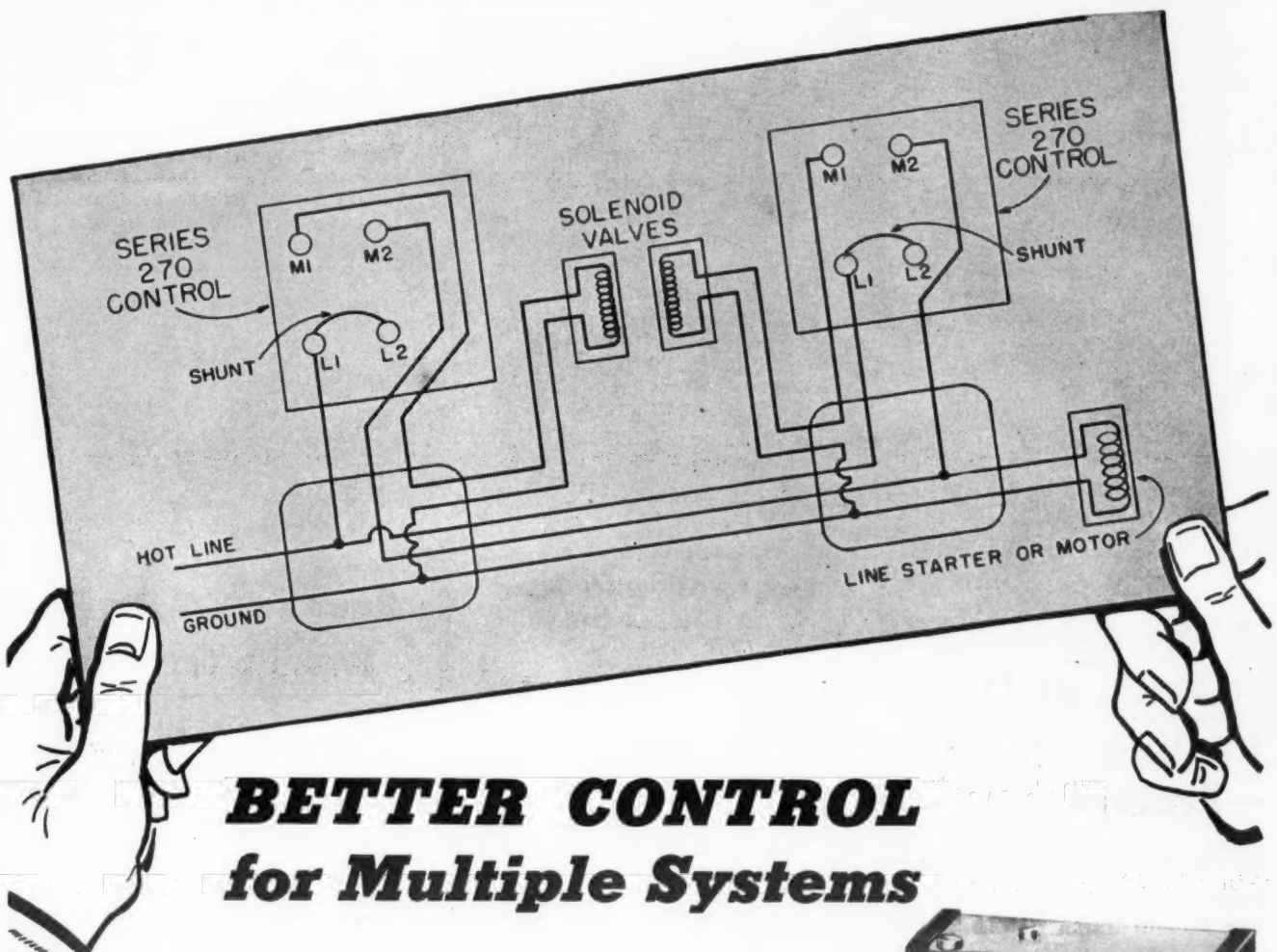
Available in 10, 16, and 24 cu. ft. sizes. The 24 cu. ft. is remote control. The 16 cu. ft. can also be had as remote control. These cabinets can be furnished with or without refrigerating units. All White Horse Cabinets are finished in white, vitrous Porcelain Enamel. Immediate delivery.

Write and see if this valuable franchise is taken in your territory.

Manufactured by

WHITE HORSE CABINET COMPANY

HARLEYSVILLE, PENNSYLVANIA



BETTER CONTROL for Multiple Systems

That's right! The PENN 270 Series Control assures a better and more economical way to control a multiple system. Shown above is a typical hook-up of a multiple system, using the controls for pilot service. Either one of the controls can energize a separate liquid line solenoid valve and start the compressor simultaneously. This is just one way to take advantage of the greater versatility of the PENN 270.

In addition, you can also use the PENN 270 to control polyphase motors of 3 h.p. and under without line starters (where protection is provided against single phasing). You can control two separate load circuits. And when wired in single phase circuits as a 2-pole switch, the 270 always breaks the "hot" line.

You'll like this superior control—*the first and only control to have a load-carrying, 2-pole switch.* You'll like it for its versatility, simplicity, efficiency and dependability. Write for full details on the PENN 270 Series today. *Penn Electric Switch Co., Goshen, Ind.* Export Division: 13 E. 40th St., New York 16, U. S. A. In Canada: Penn Controls, Ltd., Toronto, Ontario.

Series 270 and 272 PENN "Single" temperature or low side pressure controls. Also (not shown) Series 271 and 273 PENN "Dual" Controls which combine in one unit a temperature or low side pressure actuated mechanism and built-in high pressure safety cut-out.

PENN AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

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WHAT COOLING UNIT *Provides* complete air purification, permitting storage of all types of food *Without* contamination or odor

ANSWER:

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Sold by Leading Refrigeration Wholesalers

BETZ CORPORATION
HAMMOND, INDIANA

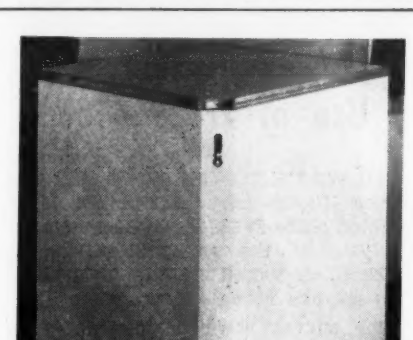
What's New

Ice Cream Freezer Drive Shaft Ring Stops Binding

OTTAWA, Ill.—A special steel ring on the drive shaft to eliminate binding caused by brine crust is one of the features of the "Dolly Madison" electric ice cream freezer now being made by J. E. Porter Corp. here.

Parts include a Northern Pine tub, a cast main frame with aluminum finish, a prime tin plate or stainless steel cream can of double seam construction, a cast aluminum cover with positive stop, and an aluminum dasher with hard maple scrapers.

The freezer's a.c. induction-type motor (50-60 cycle, 105-115 volts) is centered on the tub for direct drive and geared to the correct freezing speed. A 6½-ft. rubber-insulated cable with plug is provided.



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Abco 40-Gal. 'Table Top' Water Heater Introduced

SEATTLE — Abco Mfg. Co. here, manufacturer of home freezers, is now producing what it claims is "the first 40-gallon 'table top' automatic water heater on the market."

Designed to blend in with the kitchen or utility room layouts, the electric tank is rectangular in shape and of counter height. It has a fire and acid-proof Formica top which provides additional working space.

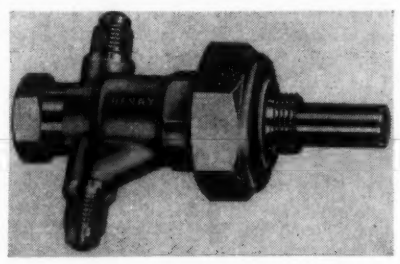
The inner tank is constructed of 3/16th galvanized steel and insulated with fibre glass. Titan thermostats and Trent heating elements are used.

Casing of the unit consists of steel finished in baked white enamel. Toe space is provided.

The heater is made in two shapes, one measuring 26 x 26 x 36 in. A "corner-type" unit is of the same height and approximately the same width and depth.

Promotional literature emphasizes that the tank matches counter and room color schemes, fits into the overall planning of the modern home, saves space, and eliminates the dust and dirt-catching problems of the old-type heater. It retails for $146.

The tank is said to be approved by Underwriters Laboratories and guaranteed for five years.



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Henry Valve Makes Forged Brass Packless Model

CHICAGO—The Henry Valve Co. here, has introduced a new type of push-button packless valve.

The valve has a forged brass body and is suitable for handling oil, air, water, or any substance not corrosive to brass. The valve is normally open and is designed for operations where either manual or automatic instantaneous valve operation is desired, and where leakage around conventional packing would be objectionable.

The Henry push-button valve has a renewable disc, renewable diaphragm, and a threaded collar around the push button, which permits it to be mounted through a flush panel opening. It is suitable for pressures up to 100 lbs. The valve can be furnished with male SAE, IPS, or female solder connections in sizes ¼ in. through ½ in.

Bev-Food Cooler--

(Concluded from Page 1)

high, 20¾ in. wide, and 15½ in. deep, or slightly more than 6½ cu. ft.

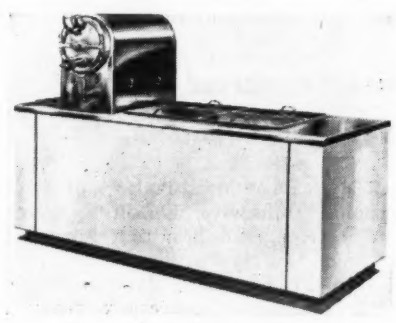
Claiming that the design of the cabinet eliminates intermingling of food odors, Artkraft asserted that, at normal temperatures, hamburgers can be kept for 30 days and sweetbreads for 10 days alongside fish with no spoilage or detriment to taste.

The self-contained Bev-Food unit has a copper lined beverage compartment with the refrigerant lines soldered on five sides of the copper tank and concealed in the walls. The food compartment is finished in porcelain.

Three inches of insulation are used. "Freon-12" is the refrigerant.

The top of the cabinet is of natural stainless steel. The sliding covers to the beverage compartment are also of stainless steel. The exterior finish is silver blue.

An automatic light is provided in the food compartment.



Taylor Freezer Model 2060.

* * *

2 Freezers Can Be Used Separately or Combined

BELOIT, Wis.—Two new Taylor freezers, a complete unit Model 2060 and a hardening cabinet Model C70, were recently introduced by Tekni-Craft here.

The Model 2060 combines a fast freezing automatic 5 gal. freezer with a 60 gal. hardening cabinet and 20 gal. mix-storage space, the manufacturer said.

Model C70 is a 70 gal. hardening cabinet for use as an extra cabinet with a Model 2060 on the same compressor or as the hardening cabinet for a freezing unit on another compressor, he declared.

Model 2060 is claimed to freeze 30 gals. per hour and freeze and harden 60 gals. in 16 hours.

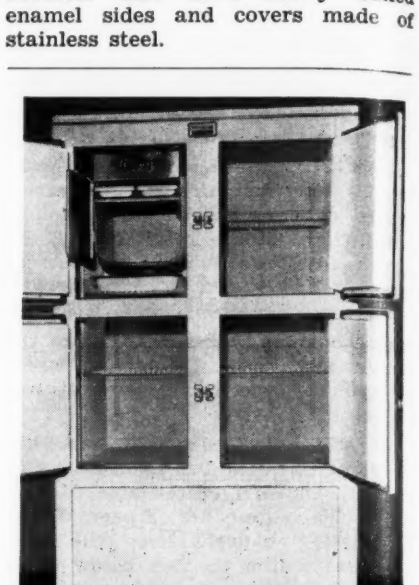
It is equipped, the manufacturer said, with the new Tekni-Craft automatic temperature control for automatic batch freezing and holding frozen malted or soft ice cream at proper temperature for immediate serving direct from the freezer.

Five beater speeds, he added, provide the right speed for any type of frozen confection and control overrun.

The freezer is equipped with an automatic expansion valve. A separate expansion valve must be provided for the cabinet.

No condensing unit is provided with either model. A methyl chloride or "Freon" unit with capacity of 3,600 to 5,400 B.t.u. per hour at -20° F. suction temperature and 100° F. head temperature must be installed separately.

Both models have Ever-Seal topless cabinets with cork insulation and welded steel assembly. The cabinets also have heavy baked enamel sides and covers made of stainless steel.



* * *

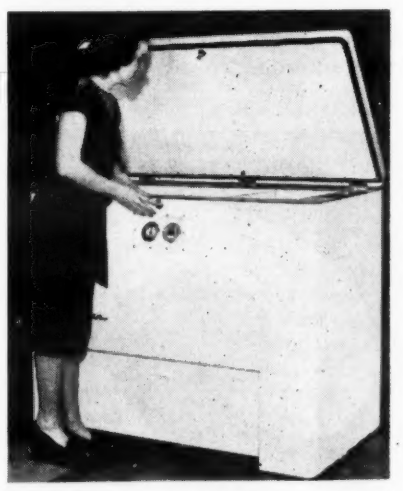
Grant Turns Out 22-cu.ft. All-Purpose Refrigerator

LOS ANGELES—The U. S. Grant Supply Co. here has just introduced a new 22-cu. ft. all-purpose refrigerator.

Ready for immediate delivery, the unit includes adequate space for frozen foods and normal refrigeration needs, the company points out in describing its new refrigerator, which is said to be designed particularly for the farm and large urban family trade.

The combination unit has chromium hardware, chromium plated shelving, stainless steel frozen food compartment, and an ice maker.

'Push-Button' Freezer



This freezer (Model ARB-8) is made by American Refrigerator & Machine. Purchase includes a 5-year warranty and frozen food insurance policy. Known as the American "push-button" model, the 8-cu. ft. all-aluminum freezer has an automatic-opening top door, large storage bin at base, visual control panel as well as wire baskets and dividers inside.

Amana FREEZER · MODEL 200 COOLER

★ The COMPLETE HOME UNIT For Cooling—Freezing —Preserving Food

In the fine homes of noted people from coast to coast—you'll find the Amana Model 200. It's a *complete private locker plant*—with adequate facilities for every food cooling, freezing and storing need. This triple-function unit combines a 23 cu. ft. capacity zero food-freezing compartment *and* a spacious 100 cu. ft. walk-in cooler for full-dressed carcass meats, aging steaks, cooling beverages, storing dairy foods, etc. It makes possible substantial savings in food costs. *Unit construction means easy installation in homes, estates, farms, ranches.*

↓↓

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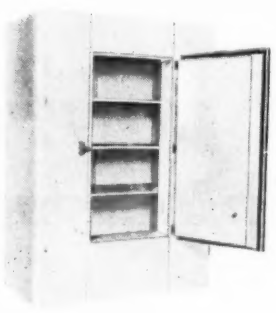
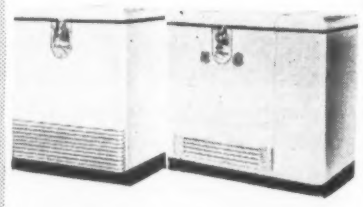
The Amana Complete Line offers you the finest opportunity in the industry, for Amana Freezers are sold at a fair price—and at a good profit. This policy builds a permanent, substantial business for you. The Amana franchise may be available for your territory. Write, wire, or telephone at once for details.

FOR THOSE WHO WANT A FREEZER ONLY



MODEL 30 R
Compact, convenient, large capacity (30 cu. ft.). Contact freezer plates for fast freezing. Get all these features at lowest cost.



MODEL 50
5 cu. ft. capacity — the popular Amana Unit for average homes.

MODEL 110
10 cu. ft. capacity — many outstanding features.

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Refrigeration Division, Dept. RN57
AMANA SOCIETY AMANA, IOWA

HERE IS another truly deluxe Freezero product manufactured with the finest quality materials and workmanship—incorporating the very latest developments in Luncheonette cases—that lives up to Delaware's Super standards. Ideal for restaurants, taverns, luncheonettes, tea rooms and food markets where space is limited to serve the public efficiently, quickly and economically.

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- Easy to clean inside and out
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- 4" Fiberglas insulation—vapor proofed
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- Engineered for dependable, long life service

DELAWARE REFRIGERATION CO.
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Manufacturers of Freezero beverage coolers, display cases and freezer cabinets, walk-in storage coolers, beer cooling equipment and other items.

Model L 4 RS

Write today for distributor and dealer franchises. Profit with Delaware Freezero products. Each product built is the greatest value in the field.

Dealer Gives Salesmen Bonus Plus 'Closed Territory' To Spur Over-Quota Selling

NEW ORLEANS—A closely-supervised outside selling program under which salesmen will be assigned specific daily duties in exclusive territories divided according to a market analysis has been developed by Gas Refrigerator Co., appliance dealer here, in preparation for the "tough sledding" ahead.

The dealership was established in February, 1946, by N. E. Wooters and R. C. Williams. Mr. Wooters was formerly assistant vice president of Servel, Inc.

"Exclusive territory" in this case means that each salesman will have complete charge of sales within his zone. Further, he will receive full credit for all sales to residents of his section, whether the sale is closed by him in the field or by a floor salesman in the store.

Every salesman will be paid a standard, flat salary plus a bonus based on the volume over his quota. The store has purposely set salaries high, and has carefully selected the men who will undergo training.

Sales zones were set up on the basis of a detailed sales-potential survey made over a five-month period in cooperation with the sales research department of Servel. Each zone contains approximately the same number of gas appliance prospects.

The survey has resulted in a "blueprint of future appliance merchandising" which Mr. Wooters believes will eliminate all the old, time-wasting bottlenecks of outside selling. With this information, the company will be able to predict rather accurately the volume obtainable from each salesman's territory.

To check the accuracy of the analysis, all sales made during 1946 were posted by pins on a large map of the New Orleans territory. In comparing the sales with the analysis half a year before, it was found that they almost exactly balanced the number predicted for each area, at least from a percentage standpoint.

"Territorial analysis has proven so accurate that we are basing our entire outside selling campaign on its figures," Mr. Wooters said.

He explained that the daily work of each salesman will be mapped out according to the analysis. Thus, when the salesman leaves the store in the morning to go into his territory, he will know exactly what his day's calls will be. Continuous assistance will be given him by the store engineer, kitchen planning experts, draftsmen, and others.

Since the salesman will receive credit for all sales to persons living in his territory, it will no longer be necessary for him to put in a lot of "floor time" to clinch sales with prospects he has already contacted.

"We believe that by guiding in this way, and blueprinting his work for him on a daily basis, he will produce much more sales volume that was ever possible before," Mr. Wooters declared.

Two complete package kitchens are on display in Gas Refrigerator Co.'s modern, all-glass-front building which bears the slogan, "Kitchen Modernizers." The kitchens contain all appliances handled, so that salesmen may start from any point and work the customer gradually up to a flat-priced kitchen.

C.H. Godschall Promoted to Works Mgr. Post at Philco

PHILADELPHIA — Charles H. Godschall, who has served as manager of the Metal Division of Philco Corp. for the past eight years, has been named works manager of the large new Philco refrigerator-freezer production facilities in Philadelphia, it is announced by E. F. Theis, vice president in charge of refrigerator production.

C. H. Godschall

Air Conditioned Crib Keeps Baby, Parents Cool First Year

BUFFALO—Judy Jo Alaimo is just a year old and she is a healthy, happy baby who has spent most of her life in an air-conditioned, glass-fronted crib. Her parents, Mr. and Mrs. Angelo C. Alaimo of 341 Hampshire St., are enthusiastic about the crib, which has proved a boon to their first child and to them.

Some months before the birth of Judy Jo, Mr. Alaimo, a science teacher at Emerson Vocational High School, conceived the idea for the crib. He did extensive research and consulted many medical journals.

Working in his basement in spare time, Mr. Alaimo finished it two weeks before Judy Jo's birth.

The crib is of standard length and width, but the bottom is higher than usual from the floor.

This makes Mrs. Alaimo's work much easier in caring for the child, because she does not have to stoop.

The front is made of 5/16-inch thick glass and moves like a window. The walls and ceiling of the crib are padded to afford semi-soundproofing.

A thermometer-control keeps the temperature inside the crib constant at 78° to 80° F., and a humidifier keeps the air properly humid. The constant temperature allows the child to live in the crib with a minimum of encumbering clothing and there is no need for blankets or bedclothing. There is an automatic alarm which sounds if the temperature inside the crib goes 2° F. above or below the desired temperature.

Mr. Alaimo points out that living in the glass crib has not made the child susceptible to illnesses when exposed to normal conditions.

"We have had the child away from the crib for 10 days at a time on trips," Mr. Alaimo explained, "and the absence of the ideal conditions has not bothered her."

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SUPER SLEUTH OF FOOD STORAGE

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Prevent food storage losses! When power fails TEMPGARD warns you. Sensitive Bi-metal Power Element activates visual and audio warning when Box temperature rises above 10°. Available with variable temperature adjustment. Easily installed. Representatives and Distributor inquiries invited.

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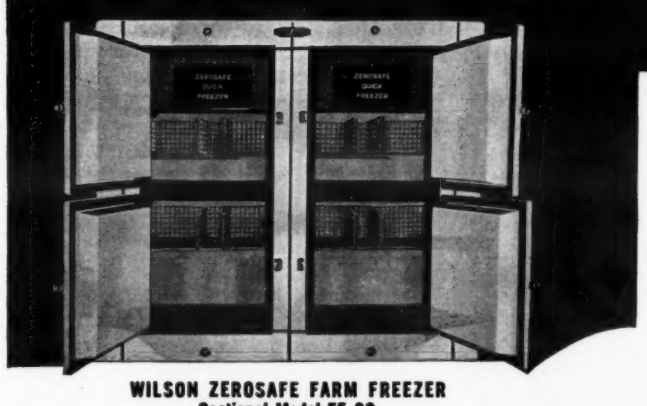
SINCE 1939•••ZEROSAFE by WILSON



WILSON ZEROSAFE FARM FREEZER
Sectional Model FF-60

THE GREAT NAME IN FREEZER DESIGN

SINCE 1939 Wilson ZEROSAFE has been the greatest reach-in farm freezer in America... THE NEW WILSON ZEROSAFE IS NOW GREATER THAN EVER BEFORE . . . Not a toy, but big, ruggedly beautiful, efficient, with stamina for years of low-cost operation.

SIZES FOR EVERY NEED FROM 15 TO 120 CU. FT.

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1—NEW 3 TON CHRYSLER AIRTEMP PACKAGE ROOM COOLER

1000—1/25 HP SHADED POLE, TOTALLY ENCLOSED, FAN COOLED ROUND BODIED MOTORS

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440 LAFAYETTE ST.
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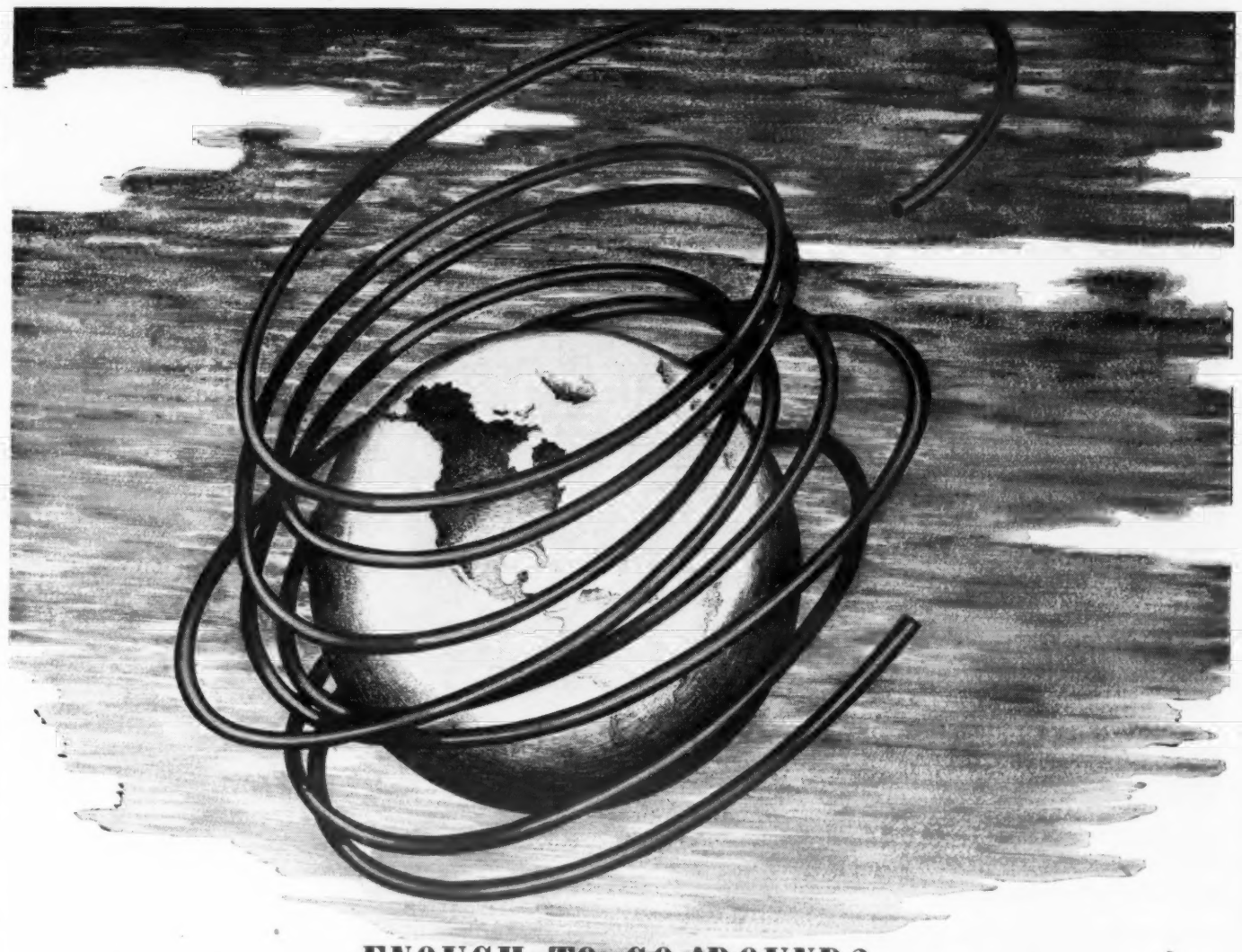
PURO FILTER CORP. OF AMERICA
DRINKING WATER SPECIALISTS FOR 40 YEARS.



ENOUGH TO GO 'ROUND?

Yes, *figuratively* we produced enough seamless non-ferrous tubing during 1946 to go 'round—enough to go 'round the world 7½ times (1,002,546,887 ft.). But *literally*, we haven't yet caught up with demand. Every day we tell customers "Sorry, we don't know when we'll ship your order". We realize that a few lengths of copper or brass tubing can delay that new refrigerator ordered so long ago, or prevent completion of a new home. Everyone at Wolverine recognizes these responsibilities.

Throughout 1946 our men and machines operated 24 hours each day—six days each week—in order that production might continue its climb. Even with the production records we have attained in the past few months, there is still not enough tubing to go 'round.

A lot of thanks belongs to you who have waited patiently. We sincerely appreciate the confidence you have placed in us, and you can be sure that we will continue to produce as much tubing as possible every day, and still maintain our quality control.

Soon there'll be enough Wolverine copper and brass tubing to go around and we'll be able to fill your needs more promptly.

WOLVERINE TUBE DIVISION
Calumet & Hecla Consolidated Copper Company
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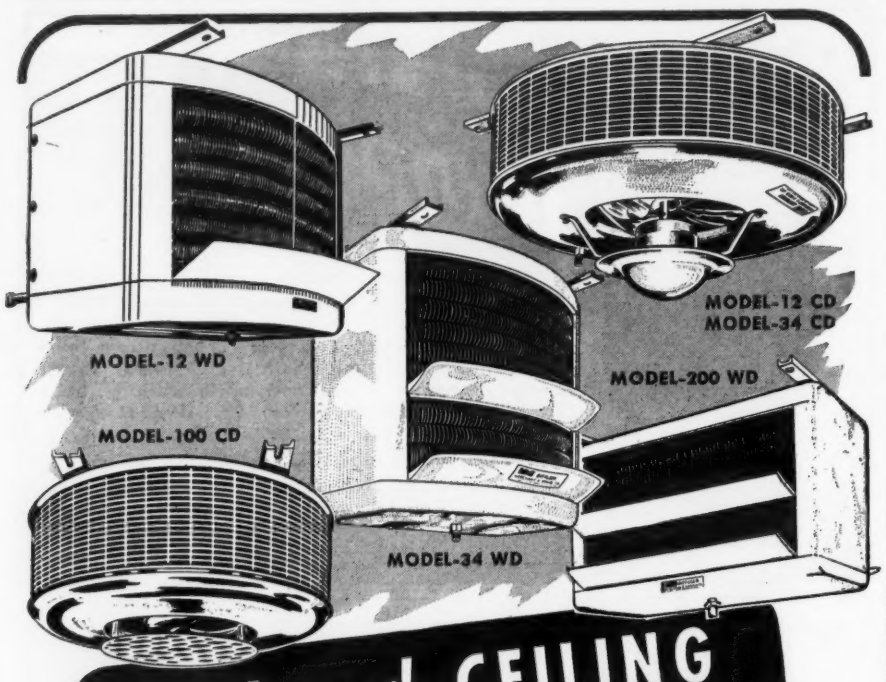

WALL and CEILING DIFFUSERS

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Desirable Territory open for Responsible distributors

Refrigeration Problems

And Their Solution

By P. B. Reed

For Service and Installation Engineers

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.

Heating or Cooling By the 'Heat Pump'

Since the "heat pump" is a refrigeration system from which the heat from the condenser is used for heating purposes, its successful and economical operation depends on how much heat it can deliver for the amount of electricity used to operate the machine.

The first thing to decide in designing this type of system is where to get the heat. It must be remembered that we cannot create heat, nor are we converting electricity or fuel into heat.

What we are doing is to gather heat that is already in existence somewhere nearby and carrying it to a place where we can use it. The most common sources of "free" heat of low intensity are in:

1. Outside air
2. Water from a well, river, pond, or lake.
3. The earth itself.

Fig. 1 illustrates a small refrigerating system all the elements of which are mounted on one base. It is placed in an opening in a window so that the plug closes the window opening, leaving the evaporator and expansion valve outside and the motor, compressor, condenser, and receiver inside. Heat flows from the outside 50° air into the evaporator, and is blown from the condenser into the 70° room.

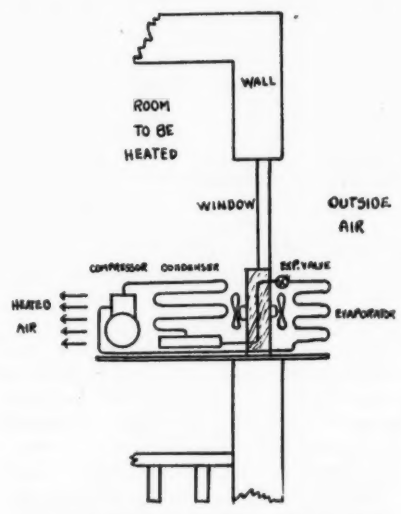

Fig. 1—How a simple refrigerating system may be used to extract heat from outside air and bring it into a room for heating purposes.

In the summer the whole system is pulled from the window, turned end-for-end and put back with the plug closing the window opening but this time with the evaporator and expansion valve inside and the motor, compressor, condenser, and receiver outside (Fig. 2).

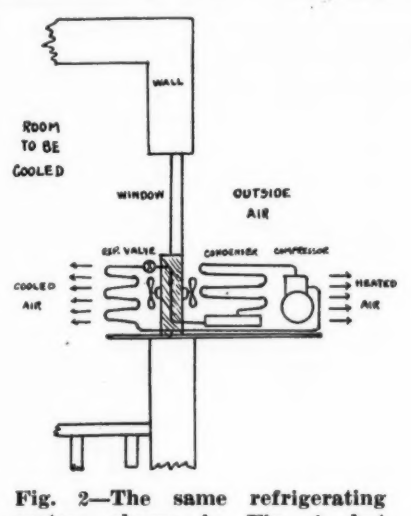

Fig. 2—The same refrigerating system shown in Fig. 1, but turned around so that it extracts heat from the room air and takes it outside, in order to cool the room.

Now the evaporator is absorbing heat from the 70° air thus cooling the room, and the heat is ejected from the condenser into the outside 100° air. This method has been used, although not extensively.

Fig. 3 illustrates how a system could be built so as to reverse the direction of flow of heat by merely changing the connections instead of physically turning the equipment around.

In Figs. 1 and 2, the evaporator and condenser always perform their same functions, but in Figs. 3 and 4, the condenser changes to an evaporator and the evaporator is changed to a condenser. In this method, much care would have to be exercised in designing these parts to make them efficient in either use.

In Fig. 3, the heat is absorbed from the 50° air by the 40° evaporator because of the 10° temperature difference. The 40° temperature of the evaporator is maintained in the usual manner by an expansion valve. The temperature of the 40° vapor is raised to 110° by the compressor and as it passes through the condenser its heat is given up to the air in the rooms.

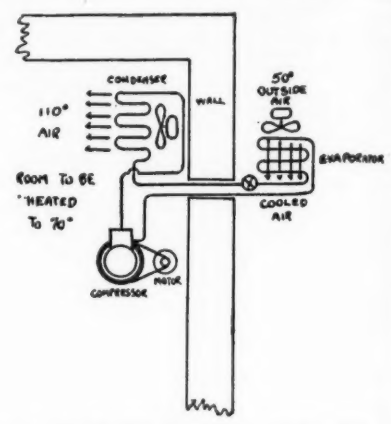

Fig. 3—Elements of a refrigerating system arranged so that the functions of the condenser and evaporator can be reversed. In this illustration they are being used to bring heat into the room.

COOLING THE BACK YARD

If the condensing unit were powered by a 1-hp. motor drawing 1,000 watts or 1 kilowatt per hour (1 KWH) the system could move about 12,000 B.t.u. per hour from the outside air into the room. We would be "refrigerating" or cooling the outside air, and heating the room.

Suppose that we suddenly switched the connections in Fig. 3 to those shown in Fig. 4. We would then be using the former condenser inside the room as an evaporator and the former evaporator outside the room as a condenser. We would be moving heat from the room to the outside, that is, we would be "refrigerating" or cooling the room, and heating the outside air.

There would be no occasion to do this as long as the temperature outside was below 70° for the heat would be leaking outward through the walls and we would need to put heat into the room to replace the heat lost.

(Concluded on next page)

Order Through Your Refrigeration Wholesaler

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AND YOU KNOW HIM

Your jobber knows your problems, and he knows the goods he sells. He is in a position to help you in many ways.

As a manufacturer of refrigeration products, we know, through experience, that the old fetish "that the middle man makes goods cost more", is absolutely incorrect. We know that through the service he renders, the goods actually reach the buyer at a *lower* cost.

WHY IS THIS A FACT?

As manufacturers, we know that if we sold direct, we would require billing, accounting, and shipping departments 10 to 20 times greater in personnel and equipment than we have at present Our transportation charges would increase tremendously—our storage space would have to be enlarged. These and many other increased costs would necessarily have to be reflected in the price of the product to you.

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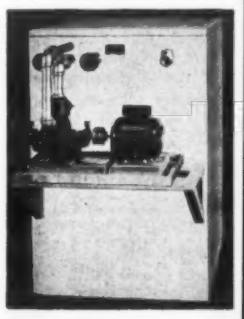

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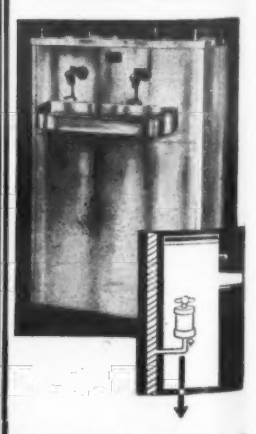

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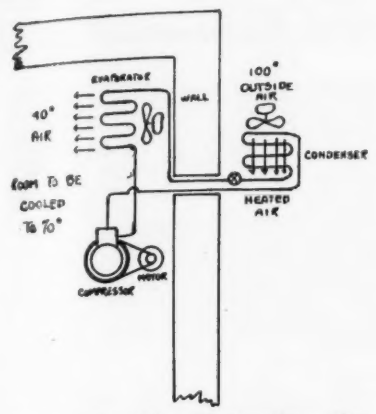

Fig. 4—In this illustration the condenser in Fig. 3 becomes an evaporator and the evaporator becomes a condenser, simply by changing the connections to the compressor.

Heating or Cooling--

(Concluded from preceding page)

MOVING HEAT OUT OF THE HOUSE

But when in the summer time, the outside temperature rises to about 100°, the heat leakage through the walls will be from the outside inward, so we will want to take it out as fast as it comes in, in order to keep the temperature in the room from going above 70°.

With the connections shown in Fig. 4, the heat from the 70° room would be absorbed into the 40° evaporator and into the refrigerant. In the compressor the temperature of the vapor would be raised to 110° and the heat dissipated into the outside 100° air from the 110° condenser.

SOURCES OF 'FREE' HEAT

When considering the heat pump or "reverse cycle" refrigeration, we must always keep in mind "Where is the heat coming from? Where will we get the heat?"

If we are to get it from outside air at zero or thereabouts, we are going to have to move a very great deal of air over our outside evaporator. One cubic foot of 0° F. air does not contain much heat so we are going to have to strain the heat out of many thousands of cubic feet of this cold air in order to get enough heat to warm a five room house or for that matter, one room.

Moreover, when the outside temperature is low, when the need for heat in the house is the greatest, is the very time when there is the least heat available in this same outside air.

Taking the heat to heat a house in the winter from the outside air is practical in the southern parts of the country where the winters are mild, where the amount of heat needed to heat the house is small and where the heat available from the outside air is comparatively large due to the relatively high temperature.

WATER AS A SOURCE OF HEAT

Another source of heat for the heat pump is water. One gallon of water cooled 10° yields 83 B.t.u.; for each 1,000 B.t.u. of heat per hour we need only to cool 12 gallons per hour 10° or 24 gallons, 20°.

By using water we need handle only a few dozen cubic feet to heat a house instead of thousands of cubic feet of air.

DEEP WELL WATER

Deep well water does not vary a great deal in temperature throughout the country. Fifty to 60° water is available in about any place that deep wells supply water.

If 55° water is cooled to 35°, each gallon pumped will supply about 166 B.t.u., so for our example house the maximum heat for which is 36,000 B.t.u. per hour, about 217 gallons per hour cooled 20° would supply enough heat.

PUMPING COSTS AN IMPORTANT FACTOR

In some localities, the cost of pumping water from deep wells is quite high—high enough in fact that, added to the cost of running the compressor and perhaps an air circulating fan, makes the total cost of operating a heat pump prohibitive.

The proportionate cost of pumping the water can sometimes be reduced by using the cooled water for some other purposes such as watering stock or for industrial processes.

WATER FROM LAKES, PONDS, OR STREAMS

Water at a fairly warm temperature is sometimes pumped from lakes, ponds, rivers, or small streams. Regardless of the source of the water, the effect is the same; the heat needed is taken from the water by chilling it in some form of water-cooler.

The heat removed from the water is used to heat the house and the water is wasted or perhaps usefully applied to other purposes.

SECONDARY SYSTEM

Instead of pumping the water from the wells, lakes, etc., a closed pipe may be immersed in the river, lake, or pond, and water or some other liquid pumped through this pipe.

The water inside the pipe picks up heat from the water outside the pipe, in the stream or lake, and the heat is carried back to some type of evaporator. There heat is extracted and the water is again circulated through the piping submerged in the lake, pond, or stream. Pumping costs may be reduced in this manner.

Another way to reduce pumping costs is to sink a casing into the ground just like driving a well. Let down into this casing is a smaller pipe with the lower end open. The cooled water, from which heat has been taken is pumped back into this smaller pipe and is pushed back up the well through the annular space between the small inner pipe and the outside pipe. In doing so, it is warmed by contact with the outer casing which in turn gets its heat from the ground.

TAKING HEAT DIRECT FROM THE GROUND

Still another method of taking heat from the ground is to bury the pipes in the ground and circulate

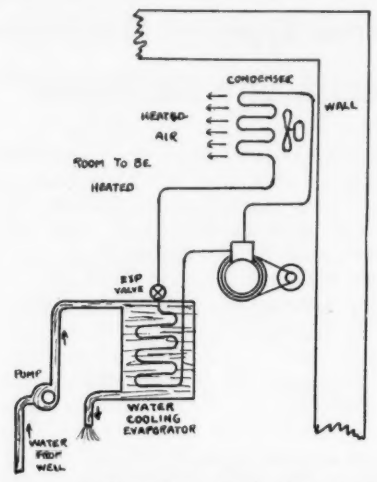

Fig. 5—Showing how the heat from well water is removed in a water cooler and ejected from the air cooled condenser to heat a room. This same equipment could be used in the summer to cool the room by reversing the connections to convert the air-cooled condenser to a blower-type cooling coil and the water cooling evaporator to a water-cooled condenser.

water or other liquid through them.

There the water is warmed and is circulated back to the evaporator where some of its heat is extracted and, by means of the refrigerant, the heat is conveyed to the condenser which heats the room by means of the heat extracted from the water.

DIRECT EXPANSION PIPES IN THE GROUND

In still another method the evaporator itself, consisting of copper tubes, is buried in the earth or in a stream or pond, and the refrigerant circulated directly through these direct expansion tubes. There it boils and picks up its latent heat of vaporization directly from the earth or the water. The heat in the refrigerant finally winds up by being thrown from the condenser into the room to be warmed.

The ground may be only 50 or 60° F., but it supplied the heat. The intensity of the heat—its temperature, is raised by the compressor.

REVERSING THE CYCLE

Returning to our example house: we had a 3-hp. refrigerating system employed as a heat pump capable of bringing into the house 36,000 B.t.u. of heat per hour. With proper design this 3-hp. refrigerating system can be used to cool the house.

In the climate in which this house is located this is just about the heat load in the summer. That is 36,000 B.t.u. will have to be *removed* from the house per hour in order to cool it. This is true during a fairly hot day, in the medium temperature region of the United States where our example house is located.

During most nights the system can cycle, that is run only part of the time in the same manner that, operating as a heat-pump for heating, it could cycle during the warm days, especially in spring and fall.

HEAT LOADS AND HEATING PHASE

The cooling phase is complicated by some factors that do not adversely affect the heating phase; that is, they affect the heating phase, but in a favorable manner.

These are such things as the sun effect—the heat from direct radiation from the sun, and miscellaneous loads such as cooking, electric lights, water heaters, and other heat-introducing devices.

REMOVING MOISTURE FROM THE AIR

The need for removing moisture from the ventilation air, which is the fresh air brought in from the outside, exerts a very heavy load on the system when it is on the summer, cooling cycle. On damp days, the entire 36,000 B.t.u. of refrigerating effect may be used in wringing moisture from the air and as a consequence there would be no reduction in the dry-bulb temperature.

Only a wet-bulb thermometer would measure the change, although occupants of the house can tell from the comfort angle. This condition would be especially noticeable if the doors are opened a great deal of the time and a good deal of outside air were let in accidentally or if, as in smoking rooms, a large amount of fresh air must be brought in for ventilation purposes.

OUT-OF-BALANCE WINTER-SUMMER CAPACITIES

It would seem that the reverse cycle system is most adaptable to those moderate climates where the amount of heat to bring into the house for heating in the winter is approximately the same as the amount of heat that must be taken out the house for cooling purposes in the summer.

The subject of reverse cycle systems is a very large one—one that requires much study. The purpose of these articles has been to point out some of the basic principles involved, so that future developments may be more correctly evaluated.

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AROUND the world the name Chrysler stands for great engineering skill and manufacturing excellence. This reputation gives products of Chrysler Corporation wide public acceptance. It also gives dealers in these products prestige, and a standing in their communities.

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The Chrysler Airtemp Triple Line of products was created to give dealers profit opportunities every month in the year. However, dealer agreements are also written for one, or two lines of products to fit the requirements of specialty organizations.

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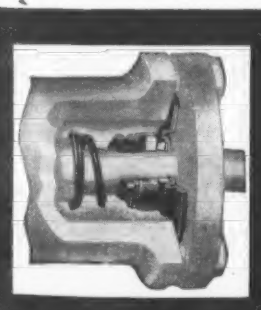

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Acme Appoints Flarsheim Kansas City Distributor

KANSAS CITY, Mo. — Appointment of Clarence A. Flarsheim as distributor for Acme Industries, Inc. in the Kansas City area has been announced by E. B. Dunphy, Acme sales manager.

Mr. Flarsheim, who was released as a major from the Army Air Forces after four years service, said he has been connected with the air conditioning industry locally since 1932.

He started as head of the air conditioning division of the Kansas City regional branch of Frigidaire Sales Corp. He later switched to Chrysler Airtemp as manager for the local distributor and eventually founded his own company, Clarence A. Flarsheim, Inc. as air conditioning distributor, he related.

Mr. Flarsheim said that he has been a member of the American Society of Heating & Ventilating Engineers since 1933.

Full Front Exposure Promotes Commercial Lines

There is 1,600 sq. ft. of window space put to good use here in showing off the commercial refrigeration and air conditioning equipment handled by Arcticaire of Kansas City, Mo. The whole display is illuminated by seven rows of high intensity fluorescent lighting.

Ted Rostock, owner and manager, shows a case to a customer drawn to the store by one of the 120,000 pieces of direct mail advertising Arcticaire is sending out this year to prospects in Kansas and western Missouri.

* * *

1,600 Sq. Ft. of Window Space Provides Store-wide Commercial Refrigeration Display

KANSAS CITY, Mo. — Unusual dramatization of commercial refrigeration equipment is the outstanding feature of the beautiful new building of Arcticaire, commercial refrigeration dealer on Mill Creek Parkway here.

Owner-manager Theodore Rostock did a sales volume of $186,000 during 1946, despite the lack of new refrigeration equipment and parts, in another store a few blocks away. He opened up the new building, which incorporates the showroom, a direct-mail advertising office, and a refrigeration plant for manufacturing custom equipment, March 1.

The company, formerly known as Blue Flash Service Co., started out in 1938 reconditioning and reselling domestic refrigerators, and grew from this starting point to one of the largest franchised dealerships for Tyler, Lipman, and Gemco equipment in the middle west.

The new building, which has fifteen 10-ft. plate-glass windows for display, contains 10,000 sq. ft. of usable space on two levels, and is constructed of vitiate tile, with a terazzo floor.

Seven rows of high-intensity fluorescent lighting provide 50 ft. candles of illumination over reach-in boxes, beverage coolers, meat cases, vegetable cases, self-service units, etc., displayed between the 1,600 sq. ft. of window space.

To back up the air conditioning division, Mr. Rostock has completely air conditioned the building, with a divided system separately cooling the office and showroom area. No window displays of any type will be used, making it possible for motorists passing outside to see all the way through to the rear wall at a glance.

The company, which concentrates on "small commercial accounts," as well as manufacturing custom equipment for particular refrigeration uses, has a staff of four salesmen out on territorial assignments, covering half of Missouri, and all of Kansas. Future plans include intensive direct mail promotion into the food retailing market, package-type air conditioning market, and custom-made refrigeration.

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Size C exchanger, base rating 32 Tons at 40° F. evaporator.

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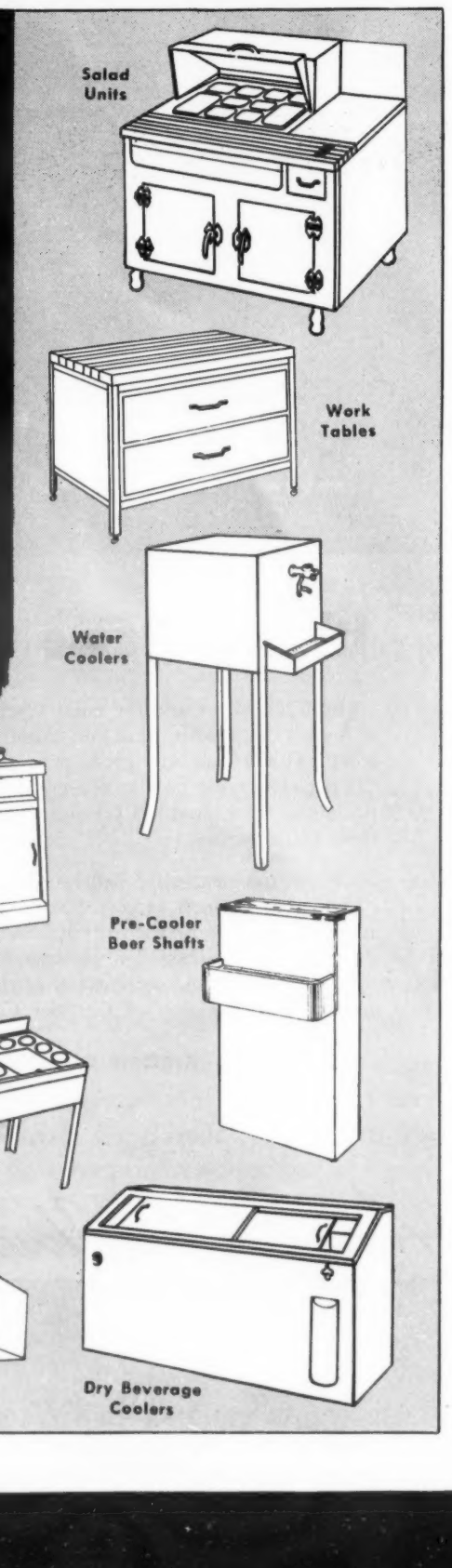

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Manufacturers of Soft Drink Dispensers for over 40 years.
4319-25 Duncan Ave. (Division 12) **St. Louis, Mo.**

They Head Crosley Sales, Refrigeration Div. Activities

LEE STRATTON

INWOOD SMITH

• • •

Stratton and Smith--

(Concluded from Page 1, Column 3)

Previously he served the Nash-Kelvinator Corp. at different periods as manager of various districts of the company, covering practically every state.

Mr. Smith, before his recent appointment, was regional sales manager of the central district, including the states of Ohio, Kentucky, Michigan, and Indiana.

He had held that position since November, 1945, when he came to Crosley from service with Westinghouse Electric Corp. and the Westinghouse Electric Supply Co.

Emerson Distributors Given Price Guarantee

NEW YORK CITY — Prices on Emerson radios are guaranteed for the rest of 1947, Benjamin Abrams, president of Emerson Radio & Phonograph Corp., notified his distributors recently.

"Should any downward revisions in price occur, the trade is guaranteed to be rebated for the difference between the old and such new prices as may be established," he added.

The guarantee, he said, covers inventory purchased between April 15 and Dec. 31, 1947.

Distributors are expected to extend the same guarantee to all franchised dealers in their territories, Mr. Abrams declared.

Trio Backs New Sales, Service Corporation with $100,000

CANTON, N. Y. — McDonald & Sahm, Inc., has been incorporated here for the sale and servicing of electrical refrigeration equipment. The firm has been capitalized at $100,000.

Incorporators are William H. Sahm, Stanley H. McDonald, and Verner M. Ingram. Office of the corporation is at 34½ Market St., Potsdam.

Electromaster District Sales Force Will Meet

MT. CLEMENS, Mich.—The seventeenth annual district managers sales conference of Electromaster, Inc., manufacturer of electric ranges, will be held here May 26-27, reports Gerald Hulett, vice president.

The meeting brings the firm's field force together for the first time since the company moved its entire operations into the new three quarter million dollar plant in Mount Clemens, last January.

Sales, service, and advertising plans for the last half of the year will be discussed. The company is launching its first national consumer advertising campaign in mid-summer.

M-H Issues New Handbook On Automatic Controls

MINNEAPOLIS—A new handbook covering automatic control systems for the refrigeration industry has been published by the Minneapolis-Honeywell Regulator Co., G. M. Kingsland, manager of the company's specialties division, has announced.

The new publication lists more than 20 different instruments specially designed for use in the cooling and refrigeration fields, he said.

Containing charts comparing 1946 and 1947 underwriter's codes, the catalogue outlines jobs and functions of automatic controls analyzed for both cooling and refrigeration application. Horsepower ratings of the various instruments also are listed in simplified charts.

The book includes information on controls and control systems for freezer cabinets, display cases, liquid coolers, air conditioners, and equipment of similar nature, he said. New safety features such as protection against dangerous high side pressures and mechanical breakdown also are discussed.

Copies of the manual can be obtained by writing to Mr. Kingsland at the company's main plant here.

Appliance Inventories Jump 416% In Eastern Dept. Stores

NEW YORK CITY—Inventories of mechanical refrigerators and other major household appliances held by department stores in New York, northern New Jersey, and southwestern Connecticut on last March 31, had jumped 416% over the same date in 1946, the Federal Reserve Bank of New York reported recently.

March Porcelain Enameled Shipments Rise 9% Over Feb.

WASHINGTON, D. C.—Total value of shipments of porcelain enameled products in March, 1947, was more than 2.4 times the total value for March, 1945; and more than 1.6 times the total for the same month last year, as reported by the Porcelain Enamel Institute, Washington, D. C.

March, 1947, shipments represent an increase of 9% over shipments in February, 1947.

Central Wholesalers Group Attends 3-Day Mueller Brass Outing

PORT HURON, Mich. — Mueller Brass Co. played host to the Central Refrigeration Wholesalers Association here recently.

The Association held its regular meeting, toured the Mueller plant, staged a cocktail party and a dinner, and played golf during its three day outing, the company asserted. Association members participating in the excursion included Ralph Kell, Leo Keely, and Walter Hoehne of Airo Supply Co.; Clarence Swanson and Jack Glass of Chase Refrigeration Supply Co.; J. B. McGuan of Automatic Heating & Cooling; Joe Coyne of H. W. Blythe Co., all of Chicago; Pat Ravanesi and Al Gatz of Service Parts Co., Melrose Park, Ill.; Gustave A. Larson of G. A. Larson Co., Milwaukee, Wis.; and Jerrell Cassady of F. W. Langsenkamp Co., South Bend, Ind.

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Ask Your Wholesaler Or Write

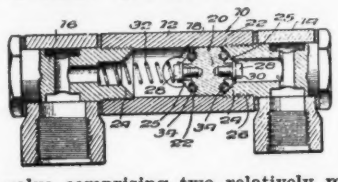
REMCO, INC., PITTSBURGH 1, PA.

PATENTS

Week of March 18

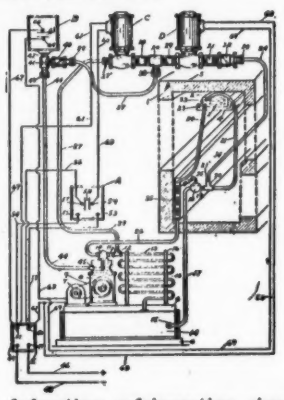
(Continued)

2,417,494. VALVE END SEAL. Addison C. Hoof, Hinsdale, Ill.; Frances A. Hoof, Hugh C. Kepner, and Walter Eckert, executors of said Addison C. Hoof, deceased, assignors to Hoof Products Co., Chicago, Ill., a corporation of Illinois. Application Aug. 24, 1942, Serial No. 455,939. 1 Claim. (Cl. 251—160.)



A valve comprising two relatively movable members one of which is provided with a recess the axis of which at right angles to the direction of applied pressure is elongated to a dimension greater than the diameter of a recess-held packing to permit packing expansion along such major axis, and the axis of which parallel to the direction of applied pressure is restricted to a dimension less than the diameter of such recess-held packing to prevent packing expansion along such minor axis, the recess having a circumferential aperture at the valve face of a dimension less than the diameter of such packing to prevent packing displacement but permit packing protrusion; and a resilient packing in the recess permanently held against displacement and substantial movement along the restricted minor axis but free to expand along the elongated major axis of the recess, a portion of said packing protruding always through the circumferential aperture of the recess to provide a constant compressible sealing contact area.

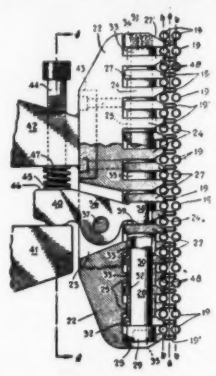
2,417,582. AUTOMATIC DEFROSTING REFRIGERATION SYSTEM. Albert S. Barfield, Atlanta, Ga., assignor to C. Dudley Shreve, Washington, D. C. Application March 26, 1941. Serial No. 385,357. 5 Claims. (Cl. 62—115.)



1. A defrosting refrigeration circulation system including a compressor and a refrigerating coil, a branched conduit interposed between the pressure side of the compressor and said coil, one of the branches of said conduit constituting a passage for a refrigerant and including a condenser, the other branch of said conduit forming a passage for a hot defrosting gas from the compressor to said coil, pressure responsive means in communication with said hot gas passage, a time controlled electroresponsive means within said hot gas passage intermediate the compressor and point of communication of said pressure responsive means with said hot gas passage, and operable, to permit flow of a charge of hot gas from the compressor, to said pressure responsive means to effect quick starting of the compressor, and a second electroresponsive means within said hot gas passage intermediate said point of communication of said pressure responsive means with said hot gas passage and said coil operable coincidentally with the starting of the compressor to permit flow of hot defrosting gas through said coil during the defrosting operation.

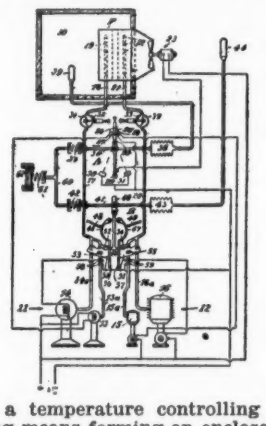
2,417,661. METHOD FOR ASSEMBLING HEAT EXCHANGERS HAVING FLATTENED TUBES. Joseph G. Rosales, Los Angeles, Calif., assignor to The Garrett Corp., Airesearch Mfg. Co. division, Los Angeles, Calif., a corporation of California. Application April 5, 1943, Serial No. 481,832. 6 Claims. (Cl. 29—157.3.)

1. The steps in a method of assembling and flattening round tubes in a cooler frame structure having spaced header plates having tube holes arranged in rows



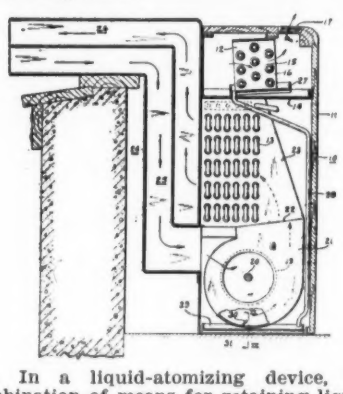
in consecutive planes from front to rear, comprising: placing a set of tubes in an intermediate row of holes; subsequently flattening simultaneously one group of tubes in said set; subsequently flattening simultaneously another group in said set; continuing said flattening operation until all of the tubes of said set are flat; subsequently and progressively placing additional sets of tubes in rows of holes adjacent a previously flattened row of tubes; and repeating the flattening operation on such subsequently placed rows of tubes before placing a succeeding row of tubes in front thereof.

2,417,761. TEMPERATURE CONTROLLING SYSTEM. Nils Erland af Kleen, Stockholm, Sweden, assignor to Kleen Refrigerator, Inc., Hoboken, N. J., a corporation of Delaware. Application March 13, 1941, Serial No. 383,123. 2 Claims. (Cl. 257—3.)



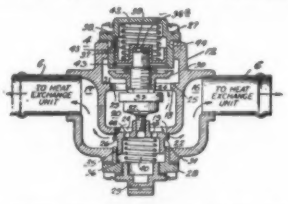
2. In a temperature controlling system including means forming an enclosed space whose temperature is to be controlled; the combination of cooling apparatus for said space including two units of respectively different capacities, heating apparatus for said space including two units of respectively different capacities, means responsive to the temperature in said enclosed space selectively controlling the operation of the lower capacity units of the heating and cooling apparatus, and means responsive to the temperature outside said enclosed space selectively controlling the operation of the higher capacity units of the heating and cooling apparatus.

2,417,743. AIR CONDITIONING APPARATUS. Arthur H. Eberhart, Springfield, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania.



1. In a liquid-atomizing device, the combination of means for retaining liquid, said retaining means having an imperforate bottom, means effecting flow of a stream of air at a substantial velocity above the liquid in said retaining means, a strip extending upwardly from the liquid in said retaining means and transversely of said air stream in such manner as to create a suction or reduced pressure on the downstream side of said strip whereby liquid is drawn upwardly from said retaining means and entrained in said air stream, said stream of air flowing on opposite sides of said strip.

2,417,708. SURGE VALVE MECHANISM. Joe C. Shaw, Racine, Wis., assignor to Young Radiator Co., a corporation of Wisconsin. Application Nov. 19, 1943, Serial No. 510,869. 4 Claims. (Cl. 236—34.)



1. A valve mechanism of the class described comprising, a housing interiorly partitioned to provide a central chamber with which is connected an inlet and wherefrom leads a pair of axially aligned and spaced valve openings communicating with separate housing outlets, a pair of piston-cylinder means arranged in said housing on opposite sides of said chamber in axial alignment with said outlet openings, one of said piston-cylinder means having the diameter of the cylinder different from the diameter of the adjacent valve opening and the other of said piston-cylinder means having the diameter of the cylinder equal to the diameter of the adjacent valve opening, thermostatic means interposed between the pistons of the respective piston-cylinder means so as to be subject to the temperature of the fluid flow through said chamber.

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SERVICE ENGINEER with thorough knowledge, 20 years actual experience. Capable of handling any phase of service or installation, refrigeration, air conditioning, locker plants. Up to date on latest developments and practices. Prefer South or Southwest. A. E. MEAD, Box 96, Kingsville, Texas.

SALES AND promotion man would like to work in Europe and near East. Mechanical and electrical engineering college. 15 years experience in refrigeration expert in quick freezing. 45 years old. Experience in export and well acquainted with economical setup in Europe. BOX 2355, Air Conditioning & Refrigeration News.

AVAILABLE AT once for factory sales or field service, man with 12 years experience with service and sales, prefer Midwest, excellent references. BOX 2360. Air Conditioning & Refrigeration News.

APPLICATION SALES engineer, BSEE; G-E test, young, married, refrigeration and air conditioning design, sales and installation experience, fluent Spanish and English, knows Latin America, desires stable position in North Eastern States or California. Salary $6000. BOX 2361. Air Conditioning & Refrigeration News.

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EQUIPMENT WANTED

WANTED IMMEDIATELY for export 5 & 6 cubic feet refrigerators. Unusual opportunity for one seeking permanent foreign market. Continuous orders assured pending satisfactory performance of your product. Wire or write your proposition. LOUIS NEUWIRTH, 17 E. 48th St., New York 17, N. Y.

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BRYANT 5R dehumidifying unit complete with controls and 1 extra new cylinder. Sacrifice. Also, Carrier ¾ ton air conditioning unit for home or office. Excellent condition, walnut finish—$275.00. ABRASIVE DRESSING TOOL COMPANY, 14528 Second Blvd., Detroit 3, Michigan.

MOTORS AND condensing units—available at once—⅛-¼-⅓-½ Universal condensing units with or without motors. Special—six hole ice-cream cabinets with ¼ hp. Copeland units less motors $225. Also beverage coolers, beer equipment, stainless steel reach-in freezers. ALBROD CORP., 319 West 48th St., New York City 19, CI 6-9100.

ARMY REFRIGERATION units operated by 10 h.p. gasoline motor, complete with water defrost coils. Suitable for various size boxes or applications. Limited quantity. Wire or write for particulars. COMMERFORD'S REFRIGERATION COMPANY, 3672 Whittier Blvd., Los Angeles 23, California.

IMMEDIATE DELIVERY—new air conditioning equipment. Weathermakers complete with motor, "Freon" coil, etc. 2 ton to 25 ton. SWSI, DWDI, and twin centrifugal blowers, propeller fans, heating and cooling coils, evaporative condensers, self-contained air conditioning units, condensing units. CONTROLDTEMP CORP., 236 Butler St., Brooklyn 17, N. Y.

FOR SALE—AC motors ½ to 3 hp. single and 3 phase, list price. Immediate delivery. EDISON COOLING CORP., 310 E. 149th St., Bronx 51, N. Y.

SACRIFICE OVERSTOCKED inventory of new condensing units, compressors, motors, and self-contained air conditioners. Sizes from 1½ HP to 50 HP, includes Carrier, Universal, Trane, etc. Wire for prices. E. M. FAIRBANKS CO., 145-03 7th Avenue, Whitestone, L.I., N.Y.

REFRIGERATOR DOORS, Jamison standard infitting double gasket, 3 hinges, latch, frame and sill, 6 inch cork insulation, opening 6' x 2' 6", also dual batten vestibule doors attached. All doors metal clad. $65.00 per set, E. M. FAIRBANKS CO., 145-03 7th Ave., Whitestone, L.I., N.Y.

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BUSINESS OPPORTUNITIES

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FOR SALE:

68 Heavy-Duty High-Pressure Condensing Units

⅓ H.P. - ½ H.P. - ¾ H.P. - 1 H.P.

Quantity	Description
35	4 F. ⅓ H.P. Compressors—less motors (*)
28	5 F. ½ H.P. Compressors—less motors (*)
1	7 F. ¾ H.P. Compressor—less motor (*)
1	7 F. ¾ H.P. Compressor—with motor
2	10 F. 1 H.P. Compressors—with motors
1	10 F. 1 H.P. Compressor less motor (*)

(*) Equipped with pulleys and belts

These units are new, in unopened crates as received from the production lines of a well-known manufacturer. Priced low for immediate sale. Shipment will be made from warehouse in central Ohio. Inquire on business letterhead. Box 2359, Air Conditioning & Refrigeration News.

Automatic Water Defrosting System Is Operated by Electronic Control

HARTFORD, Conn. — Electronic control for water defrost systems has been introduced by Bush Mfg. Co., manufacturer of heat transfer equipment here.

An electronic tube automatically starts the defrosting cycle whenever the current load on the motor of the blower unit fan rises to a point indicating too much frost on the coil, the company says.

Known as the "Auto Defrost," the control contains in a compact box the necessary electron tube (type 6SH7), relays, adjustment knobs, and timing motor needed. It can be used to control the defrosting of single or multiple blower coil installations, although an additional relay is required on multiple installations.

When the increased fan motor current load indicates that defrosting is necessary, the electron tube actuates a relay in the control box which starts the following sequence of operations:

1. The fan motor shuts off. 2. The refrigerant solenoid valve closes. 3. A solenoid valve opens the water supply line to defrost the coil. 4. A synchronous timing motor starts and runs for six minutes, after which it shuts off the water solenoid valve. 5. The timer allows another four minutes for the water to drain. 6. The fan motor is re-started. 7. The refrigerant solenoid opens.

If defrosting is not completed, as indicated by the continued high load on the fan motor, the cycle is repeated, according to Bush.

FOR EXISTING INSTALLATIONS

Defrosting only when necessary and operation independent of the refrigeration system are among the features claimed for this control. It is said to be easily installed on existing water defrost installations and is mounted outside the refrigerated space. The defrost control, adds Bush, can be employed on jobs using a room thermostat control combined with low pressure cut-out, or on systems operating on pressure controls.

Electrical connections for a typical single blower unit system are made as follows: A lead from the control box is plugged into a 110-volt 60 cycle wall outlet and a ground connection made to a convenient water pipe. There are three outlets on the top of the control box for polarized plug-in connections. Left outlet connects to the fan motor, center outlet to the refrigerant solenoid, and right outlet to the water supply solenoid.

The line from the control to the water supply solenoid is also connected in series to an overflow safety switch in the drain pan beneath the unit cooler so that the water valve will close when the drain pan reaches the overflow point.

If the blower unit is equipped with two motors, leads from one motor are plugged into the fan motor outlet of the control, while leads from the second motor are connected in parallel with the line from the control box to the refrigerant solenoid.

As many as four unit coolers can be hooked up to one Auto Defrost control, Bush indicates. An additional two-circuit 110-volt relay is required, however. For a multiple installation one unit cooler is selected as the master unit, presumably the coil which requires defrosting most frequently.

Fan motor plug-in line connects the left outlet of the control box to the fan motor of the master unit. Fan motors of the other unit coolers are connected in parallel to one circuit of the auxiliary 110-volt relay. The relay is connected to the center plug-in outlet of the control box used for the refrigerant solenoid valve connection in a single-unit installation. Second circuit of the relay controls the refrigerant solenoid.

With this arrangement, when enough frost accumulates on the master coil to cause the electronic control to shut off this motor, the control also closes both circuits of the relay. The relay, in turn, shuts off the other fan motors and closes the refrigerant solenoid.

WHEN TWO MOTORS ARE USED

When two fan motors are employed on the master unit cooler, one motor is connected directly to the electronic control, and the other is wired into the auxiliary relay fan motor circuit.

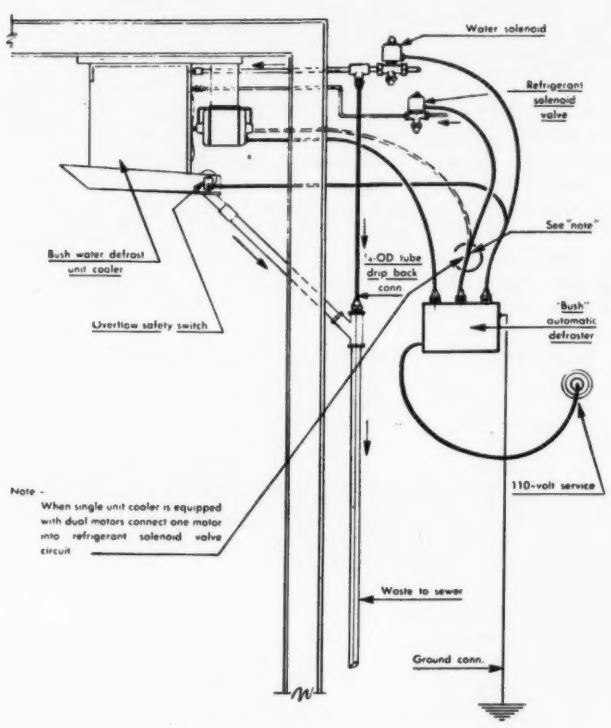
Third outlet on the control box is connected to the single solenoid water valve employed in multiple installations. The overflow safety switches on all the drip pans and connected in a series-parallel hookup with the water solenoid to close the valve should any one of the drain pans approach the overflow point.

Before the Auto Defrost control can be set in operation it is necessary to adjust it to the power factor of the fan motor, points out Bush. This adjustment has to be done in the field because the motor power factor will vary with the make and construction of the motor and the load placed upon it, the company says. This adjustment procedure is done through two control knobs within the box. Steps in adjusting the control are outlined by Bush as follows:

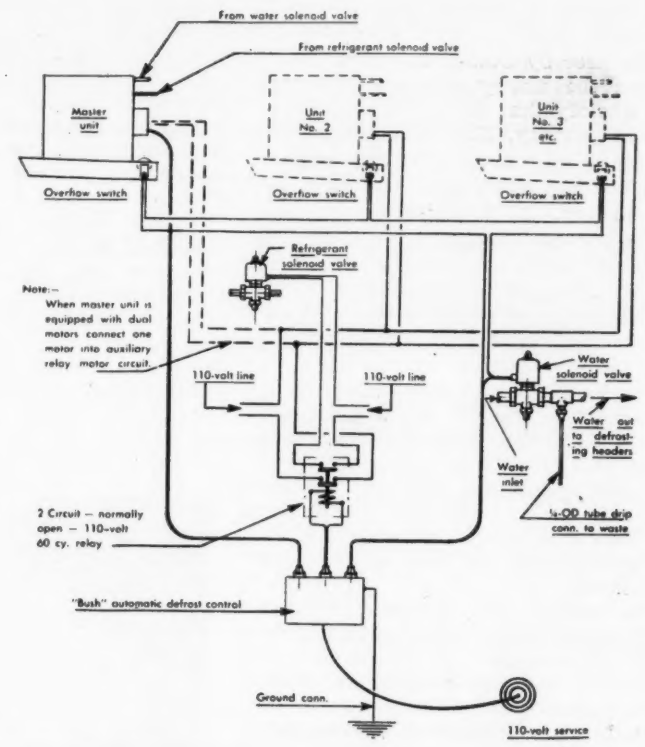
1. For convenience, connect only fan motor to control box.
2. Make one complete revolution of timing cam. If light does not come on during part of revolution, check ground. If it stays on all the time, reverse power plug in socket.
3. Rotate timing cam until fan motor starts. Fan should be on during all setting operations. If it goes off, rotate timing cam until fan starts again.
4. Set "phase" pointer at mark five on dial. Set "magnitude" pointer at mark 10.
5. Turn magnitude pointer counterclockwise until indicator light is fully on. Mark this point on dial.
6. Turn magnitude pointer clockwise until light goes fully out. Mark this point and note angle between two points marked on dial.
7. Reset phase pointer at mark six and repeat steps 5 and 6. Note whether angle marked on magnitude dial is smaller. If angle is smaller, continue increasing phase setting until angle is at minimum. If angle does not become smaller, reset phase pointer at mark four and continue decreasing until minimum angle is found. Phase pointer is then properly set.
8. To set magnitude pointer for one point, place a piece of cardboard against the coil of the unit cooler. The cardboard should be of the same width as the coil but should be 1 in. shorter.
9. Indicator lamp will then be lit. Rotate magnitude pointer clockwise until lamp goes out. Mark this point. Set the pointer half-way between this mark and the final magnitude turn-off point determined when finding the phase setting.
10. Remove cardboard from the coil. Insert water solenoid and refrigerant plugs in control box. The installation is now ready for automatic operation.

Wiring Diagram for the Bush Automatic Water Defrost System

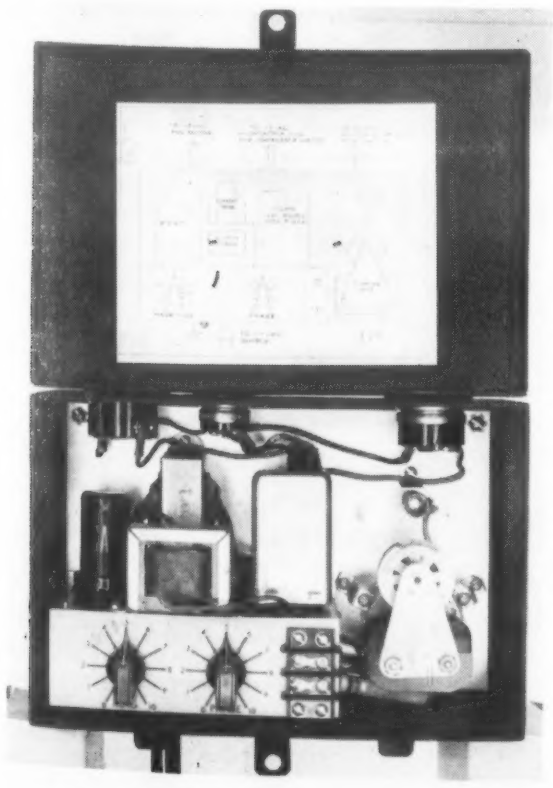
TYPICAL SINGLE-UNIT CONNECTIONS


Water solenoid
Refrigerant solenoid valve
See "note"
¼-OD tube drip back conn
"Bush" automatic defroster
Bush water defrost unit cooler
Overflow safety switch
110-volt service
Note -
When single unit cooler is equipped with dual motors connect one motor into refrigerant solenoid valve circuit
Waste to sewer
Ground conn.

TYPICAL MULTIPLE-UNIT CONNECTIONS



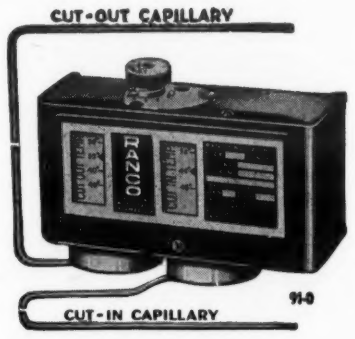
'Insides' of the Defrosting Control Box



Interior of the electronic control box for automatic water defrosting shows the timer clock at right which controls the length of the defrosting cycle. Electronic tube at the left starts the defrosting cycle when electric load on coil blower fan builds up to a point indicating frost on the evaporator. The two knobs are used to adjust the control for normal operation of the fan motor.

RUGGED Construction

RANCO Controls are Built to "Take It"



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Beverage Coolers
Ice Cream Cabinets

For full information write Department A 21.

GRC GENERAL REFRIGERATORS CORP.
678 BROADWAY NEW YORK 12, N.Y.

Steel 'Gray Market'--

(Concluded from Page 1, Column 5)

got the $2,600 deposit but I wasn't ever able to locate any of its officials."

An offer by Stakes in February to return the money was answered by the Society that it wanted the steel, not the money, Mr. Hatter testified.

"Since then nothing has happened and we still don't have our steel or our money," he declared.

During his testimony, Mr. Hatter also related how he had run into a "daisy chain of commission fee" demands while attempting to purchase steel. One experience was described as follows:

He said he was introduced to a James Kelly by W. W. Sutherland, of Chicago. Mr. Kelly promised him 4,000 tons of steel at $180 a ton when the mill price was $80, Mr. Hatter said.

"This was all hush-hush," the attorney pointed out. "No names were mentioned."

He testified he got this answer to a proposal that the commissions be withheld until the steel was delivered:

"Kelly said he thought he could take care of the Chicago crowd on that, but the boys down in Washington wouldn't stand for it. He said they were a hard bunch, and the money had to be on the barrelhead for them."

Senator Martin (R., Pa.), chairman of the committee, asked who the "boys in Washington" were.

"As nearly as I could find out, they were a nebulous syndicate of some kind," Mr. Hatter answered. He added that no money was paid and no steel secured.

The belief that some of the "bootleg" steel was coming from companies that were finding it more profitable to sell the steel they got from the mill at high prices than to process it into a finished product was expressed to the committee by George C. Foerstner, manager of Amana's refrigeration plant.

Representatives of Stangard-Dickerson told the committee the same thing. Blaming the situation on improper supervision of distribution from mills, they said many buyers from mills were not using the product themselves but were reselling at large profits.

The committee heard that refusal of big mills to fill orders had forced small users to buy from jobbers, warehouses, junk men, and even dentists at prices around four times those charged by mills.

After listening to testimony regarding the sale of steel to Stangard-Dickerson by the St. Louis Boiler & Equipment Co., the committee summoned the latter's president, J. F. Kurtz, to appear for questioning.

As the committee's investigation continued, a member of its staff told reporters the inquiry has already stopped or considerably slowed down questionable, above-market offerings. This source said his information came from brokers in Washington and elsewhere.

Testimony was expected to be heard soon by the committee concerning the sale, or attempted sale, of 240,000 tons of sheet steel.

These other developments in the steel "black market" situation also popped up in the week's news:

1. A charge that "brokers" are running a sky-high black market in hot and cold rolled steel in Detroit was made by L. G. Auberlin, secretary of the Purchasing Agents Association of that city. Some plants are faced with the prospect of dealing with these operators or going out of business, he declared.

2. A statement that very little of the more than a million tons of steel products made weekly by steel plants is going into the black market came from Frank Purnell, president of the Youngstown Sheet & Tube Co. Mr. Purnell claimed the importance of the alleged black market is greatly exaggerated.

While confessing that it is almost impossible to find out precisely how the black market operates, Mr. Auberlin gave this as his own diagnosis:

"There was, and still is to a lesser degree, a severe shortage of scrap metal, an essential ingredient of steel. A few outfits collared the scrap market and forced steel mills to make reciprocal agreements.

"Under the agreements, the scrap men got the privilege of buying almost unlimited tonnages of new steel—and now they have many small plants over the barrel.

"They force these plants to deposit thousands of dollars in banks for 'expediting purposes.' Actually, it amounts to giving the scrap men almost unlimited expense accounts. By the time the tonnage has been delivered—at prices 200 to 300% above mill prices—the bank account is just about gone.

"If the deal does not go through, however, the plants have no recourse. They have to sign contracts waiving the expense accounts."

The purchasing agent for an automobile accessory plant in Detroit—who said he was offered "a fabulous tonnage" of steel last week for $315 a ton—declared that scrap outfits are not the only cause of price-gouging.

"I have been approached by representatives of steel mills, offering me steel at figures high above their regular, published mill prices," he asserted.

Pointing out that officials of Youngstown Sheet & Tube Co. have made a careful check-up, President Purnell said:

"None of the big producers is selling any part of its output in the black market. They have too much at stake. There might be a little steel finding its way into it from steel customers who have a little more steel on hand than they need, but that does not amount to much tonnage."

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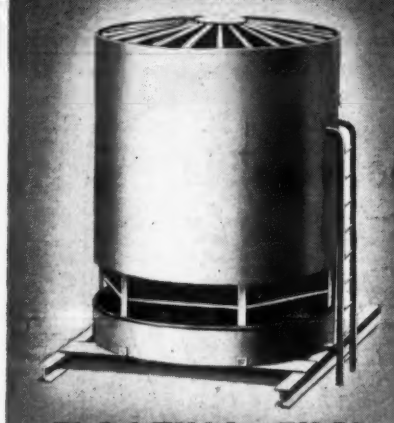

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